...Upfront

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Foods Away From Home

This issue of *FoodReview* focuses on food away from home. A reflection of our rising prosperity is consumers' increasing willingness to pay for service and convenience, especially when it comes to food. The restaurant and fast food industries have grown for several decades as food manufacturers and retailers alike race to develop products that are easier and faster to prepare at home (often with a microwave oven) or that require no at-home preparation at all. Currently, Americans spend almost half of their food budget on prepared meals at eating places.

This ongoing change in what we eat—and where we eat it—has wide-ranging implications for researchers and policymakers. One important issue is the minimum wage. The restaurant and fast food industries, which employ fully half of all food system workers, employ by far the most minimum wage workers. Many are part-time and on average are younger and less educated than the rest of the U.S. workforce. Legislation aimed at increasing the minimum wage is expected to disproportionately affect the food system, especially the foodservice sector. But evidence collected after the 1997 minimum wage hike suggests that the effect on the prices of food away from home prices was not substantial, and a 50-cent future increase is predicted to translate into at most a 1-percent increase in away-from-home food prices.

Increasing consumption of food away from home and processed foods raises questions about the nutrient intakes of individuals, especially children. There is evidence that children today are developing poor eating habits, and that their diets actually deteriorate with age. Nearly all restaurant foods and fast foods consumed by children are higher in fat than are school foods.

The rapid growth in fast food reflects a strong demand for quick and convenient meal choices as well as the industry's success in making fast food as convenient and as readily available as possible. For example, fast food outlets are appearing in department stores, office buildings, and gasoline stations—all in an effort to increase convenience. At the same time, consumption of processed foods has surged, more than doubling between 1972 and 1992, as Americans seek foods that are quicker and easier to prepare at home.

While the growth in consumption of processed and away-from-home foods reflects our Nation's rising prosperity, 1 in 10 Americans still do not have enough to eat. Food assistance expenditures have been falling, in part because of the strong economy and in part due to changes in food assistance policies. Food banks are an increasingly important source of food for the needy. In the Mid-Atlantic region, a typical food bank annually distributes about 14,000 pounds of food, much of which is unmarketable surplus donated by the food industry. But as food manufacturers and retailers more efficiently manage and dispose of food inventories, charitable donations become more difficult to obtain. Policymakers need information on the role of food banks in providing for the needy, especially when contemplating changes in food assistance programs.

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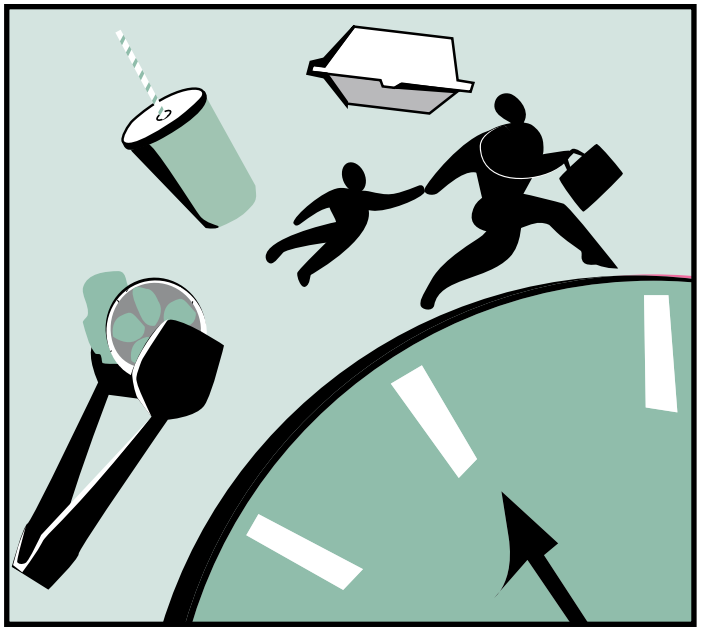

Away-From-Home Foods

Also Inside

Quality of Children's Diets At and Away From Home: 1994-96

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The popularity of eating out is a growing threat to the nutritional quality of children's diets. American children typically eat too much fat, saturated fat, and sodium, and not enough fiber and calcium. Foods kids eat away from home are even higher in fat, saturated fat, and sodium and lower in cholesterol, fiber, calcium, and iron than foods eaten at home. The exception is school foods, which provide higher amounts of fiber and calcium than all other foods. Children of all ages and both genders eat too much fat and saturated fat, but some dietary deficiencies vary by age and gender: excessive intake of cholesterol and sodium is a problem facing many male teens while female teens face insufficient intake of iron and calcium.

This information is obtained from USDA's 1994-96 Continuing Survey of Food Intakes by Individuals (CSFII), which collects information on what, when, where, and how much Americans eat. Data are collected from a nationwide sample, which yields results generalizable to the American population. USDA's Agricultural Research Service (ARS) maintains a nutrient database, which is used to calculate the amount of nutrients in each food eaten. This article analyzes 1-day individual intakes for children age 2 to 19. Older children no longer in school were excluded from the analysis, as were pregnant or lactating females. Children were grouped into six categories according to their gender and age. In total, this analysis included 4,780 children, representing 62 million children in the United States during 1994-96.

We define away-from-home and home foods according to where the foods are obtained, not where they are eaten. Food at home consists of foods purchased at retail stores, such as the grocery store or supermarket. Food away from home consists of foods obtained from foodservice and entertainment establishments. Away-from-home foods are classified into four groups: "restaurants," or places with waiter service; "fast food," those self-service and carry-out eating places and cafeterias; "schools," including daycare centers and summer camps; and "others," which include vending machines, community feeding programs, and someone else's home. Meals and snacks combining away-from-home and home foods are classified according to the component that contributes the most calories to that particular eating occasion.

Older Children Eat Less Often

During 1994-96, children ate an average of 2.8 meals and 1.8 snacks each day (table 1). Boys and girls ate a similar number of meals and snacks. Older children ate fewer meals and snacks each day. For example, girls age 2-5 ate 2.9 meals and 2.2 snacks each day, compared with 2.6 meals and 1.7 snacks consumed by girls 12-19.

On average, food away from home accounted for slightly less than one in every three meals consumed by children. Preschoolers favored fast-food places, which served 35 and 39 percent of away-from-home meals to preschool boys and girls, respectively. Once they began attending elementary schools, children obtained more of their away-from-home meals at schools than at fast-food places, 44 percent compared with 29 percent. School meals became less attractive to children in middle and high schools, and their contribution to meals away from home dropped to 32 percent. Differences in preferences become more apparent among older children, also. For example, male teens[1] clearly favored fast foods, and ate 2 out of 5 away-from-home meals at fast-food places, while

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[1]Although this age group also includes children 12 years old, for simplicity they will be referred to as "teens."

female teens tended to frequent a variety of places, including restaurants (14 percent of their away-from-home meals) and others (23 percent of their away-from-home meals).

On average, one in every five snacks was eaten away from home. "Others" (which include snacks obtained from a vending machine or eaten at someone else's home) were by far the most popular sources of snacks, accounting for over 60 percent of all away-from-home snacks eaten by children. Among preschoolers, day-care centers and preschools accounted for one in every three away-from-home snacks. Children in elementary schools equally favored snacking at schools and fast-food places, whereas older children favored snacking at fast-food places over schools.

Children ate 26 percent of their total meals and snacks away from home and obtained 32 percent of food calories from away-from-home foods (table 1). This suggests that children either eat larger amounts when they eat out and/or eat higher calorie foods. Fast-food places provided 7 percent of all meals and snacks eaten by children, and contributed 10 percent of total calories. Schools provided about 8 percent of all meals and snacks and contributed 9 percent of total calories. On average, restaurants contributed very little to children's caloric intake—only 4 percent of daily calories.

Comparing Nutritional Quality of Foods

We compared the nutritional quality of foods from various sources using the nutrient-to-calorie (or nutrient) density, which measures the amount of a nutrient or food component for each 1,000 calories of that food. Because dietary recommendations for fat and saturated fat

Table 1
Children in Elementary Schools Ate More Meals at Schools Than Other Away-From-Home Places

Item	All children and up			Age 2 - 5		Age 6 - 11		Age 12	
	All	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
				Number					
Meals per day	2.8	2.8	2.8	2.9	2.9	2.8	2.8	2.6	2.6
Snacks per day	1.8	1.8	1.8	2.1	2.2	1.8	1.7	1.7	1.7
				Percent					
Meals									
At home	70	70	70	77	78	69	68	65	66
Away from home	30	30	30	23	22	31	32	35	34
Fast food[1]	33	35	31	35	39	29	29	40	29
Schools[1]	36	36	35	27	24	44	44	32	32
Restaurants[1]	11	10	11	14	11	11	7	9	14
Others[1]	19	17	22	23	26	15	18	15	23
Snacks									
At home	80	81	78	83	82	80	79	81	75
Away from home	20	19	22	17	18	20	21	19	25
Fast food[1]	17	18	16	11	13	19	16	21	19
Schools[1]	18	19	18	31	35	19	16	9	7
Restaurants[1]	4	4	3	5	1	3	2	5	7
Others[1]	61	60	63	52	52	59	66	65	67
Calorie distribution									
At home	68	68	68	76	76	69	66	65	65
Away from home	32	32	32	24	24	31	34	35	35
Fast food[2]	10	11	9	7	7	9	9	15	10
Schools[2]	9	9	9	7	7	11	12	9	8
Restaurants[2]	4	4	3	3	2	4	3	4	5
Others[2]	9	8	10	7	7	7	10	8	11

Notes: [1]Percent of away-from-home meals and snacks. [2]Percent of total calories. Source: Compiled by USDA's Economic Research Service from the 1994-96 CSFII, 1-day intake.

are expressed as a percentage of total calories consumed, we used the proportion of total calories that come from fat and from saturated fat as measures of the fat and saturated fat densities.

For each nutrient or food component we also derived a "benchmark" density. Obtained by dividing the recommendation for a given nutrient or food component by an individual's reported caloric intake in 1,000 calories, the benchmark density represents the nutrient density necessary for an individual's diet to meet the dietary recommendation at that caloric intake level. The benchmark density for a particular nutrient will be lower (higher) than the nutrient density when that nutrient is consumed in amounts higher (lower) than the recommended levels. We used dietary recommendations from the *Dietary Guidelines for Americans* (USDA/DHHS, 1995) and other health authorities to derive the benchmark densities for seven nutrients and dietary components: fat, saturated fat, cholesterol, sodium, fiber, calcium, and iron. We calculated benchmark densities for specific population groups by dividing the sum of the recommended intakes for all people in the group by the sum of their reported caloric intakes.

Too Much Fat

According to the *Dietary Guidelines for Americans*, fat intake should not exceed 30 percent of total calories and saturated fat should be less than 10 percent of total calories—the benchmark densities for fat and saturated fat. Foods consumed by children during 1994-96 contained 33 percent of calories from fat and 12 percent of calories from saturated fat (table 2). Consequently, only 36 and 31 percent of all children met the recommended intake for fat and saturated fat, respectively (table 3).

In 1994-96, away-from-home foods had, on average, higher fat and saturated fat densities than home foods (table 2). Home foods consumed by all children contained 31.5 percent of calories from fat and 11.5 percent of calories from saturated fat, compared with 36.2 percent of calories from fat and 13.2 percent of calories from saturated fat for away-from-home foods. The higher fat and saturated fat densities for away-from-home foods occurred for all age/gender groups (table 4).

Restaurant and fast foods had a higher fat density than school foods for all age/gender groups, except for boys 12-19 who obtained 38.5 percent of calories from fat from school foods. In contrast, the saturated fat density of school foods was higher or similar to the saturated fat density of restaurant foods or fast foods, except among preschool girls.

USDA's *School Meals Initiative for Healthy Children* of 1994 aims to lower the high fat and high saturated fat content of school meals. Since the initiative was not implemented until fall of 1996 and many schools received permission to delay its implementation, the effects of the initiative will not be more fully understood until more current data are available.

Restaurant Foods High in Cholesterol, Sodium

Many health authorities recommend that daily cholesterol intake should not exceed 300 milligrams (mg). The U.S. Food and Drug Administration (FDA) uses this recommendation to set the Daily Value for nutrition labeling (Kurtzweil, 1993).

Although home foods, on average, had a higher cholesterol density than away-from-home foods, the cholesterol density among the different sources of away-from-home foods varies widely. Home foods averaged 118 mg of cholesterol per 1,000 calories, compared with 107 mg of cholesterol per 1,000 calories for away-from-home foods (table 2). However, restaurant foods averaged 144 mg of cholesterol per 1,000 calories, 43 percent higher than the cholesterol density of fast foods. Regardless of source, cholesterol densities were considerably lower than the benchmark density, resulting in 77 percent of all children (74 percent for boys and 81 percent for girls) meeting the recommended cholesterol intake (table 3).

Interestingly, restaurant foods consumed by girls 6-11 had the highest cholesterol density of all, 163 mg of cholesterol per 1,000 calories, followed by restaurant foods consumed by girls 12-19, with 154 mg of cholesterol per 1,000 calories (table 4). Both of these cholesterol densities were slightly lower than the benchmark density for each group, so that 82 percent of girls 6-11 and 78 percent of girls 12-19 met the recommended intake for cholesterol. In contrast, the 137 mg of cholesterol per 1,000 calories provided by restaurant foods eaten by boys 12-19 was substantially higher than their benchmark density of 110 mg of cholesterol per 1,000 calories. Because older boys tend to consume more calories than other children, they are more likely to exceed the recommended cholesterol intake, which is fixed regardless of total caloric intake. During 1994-96, more than one in every three boys 12-19 exceeded the recommended intake for cholesterol.

The National Academy of Sciences' *Diet and Health* recommends an upper limit of 2,400 mg of sodium per day, regardless of age

and gender (National Research Council, 1989). The sodium density is similar for home foods (1,568 mg per 1,000 calories) and away-from-home foods (1,590 mg), and both are substantially higher than the benchmark density of 1,224 mg for all children (table 2). During 1994-96, only 39 percent of all children met the recommended sodium intake (table 3).

Although sodium densities varied greatly within each age/gender group—from a low of 1,423 mg to a high of 1,962 mg per 1,000 calories—restaurant foods typically provided the highest sodium densities. Except among girls 2-5, the sodium density of children's diets exceeded the benchmark (table 4). Although most children need to pay attention to the sodium level in foods they eat at and away from home, the problem is particularly severe for male teens, since their higher calorie consumption results in a particularly low sodium benchmark density. Male teens ate an average of 1,590 mg of sodium per 1,000 calories, 80 percent higher than their benchmark density of 880 mg of sodium per 1,000 calories.

School Foods Lead in Fiber, Calcium

The American Health Foundation recommends a dietary fiber intake of "age plus five" for children 2 and older (Williams). With an average intake of 1,961 calories per day reported during 1994-96, the benchmark fiber density for all children was 7.3 grams per 1,000 calories. The fiber density in foods eaten by children during 1994-96 averaged 6.7 grams per 1,000 calories, resulting in only 39 percent of all children meeting the recommended fiber

Table 2
Too Much Fat, Saturated Fat, and Sodium, and Too Little Fiber and Calcium in Children's Diets

Food outlets for children	Total fat	Saturated fat	Cholesterol	Sodium	Fiber	Calcium	Iron
	Percent of calories		*Mg*		*Grams*	*Mg*	
All children[1]—							
Home foods	31.5	11.5	118	1,568	6.9	474	8.3
Away-from-home foods	36.2	13.2	107	1,590	6.2	438	6.0
Fast food	38.2	13.7	101	1,609	5.6	359	5.9
Schools	36.4	14.5	103	1,609	7.1	665	6.2
Restaurants	38.4	12.7	144	1,723	6.2	344	6.0
Others	32.8	11.7	101	1,493	5.8	331	5.9
All foods	33.0	12.0	115	1,575	6.7	463	7.6
Benchmark	30.0	10.0	153	1,224	7.3	530	5.8
Boys—							
Home foods	31.7	11.5	118	1,563	6.8	473	8.5
Away-from-home foods	36.6	13.4	108	1,605	6.1	438	6.0
Fast food	38.3	13.7	102	1,609	5.4	356	6.0
Schools	36.9	14.8	106	1,630	7.0	671	6.1
Restaurants	38.5	12.4	137	1,759	6.6	334	6.2
Others	32.9	11.9	105	1,497	5.8	326	5.9
All foods	33.3	12.1	115	1,576	6.6	462	7.7
Benchmark	30.0	10.0	139	1,110	6.7	481	5.0
Girls—							
Home foods	31.3	11.4	119	1,575	7.0	474	8.1
Away-from-home foods	35.7	13.0	106	1,570	6.3	439	6.0
Fast food	38.1	13.6	101	1,608	6.0	364	5.9
Schools	35.8	14.0	100	1,581	7.3	658	6.3
Restaurants	38.4	13.2	153	1,672	5.7	359	5.8
Others	32.7	11.5	98	1,489	5.9	335	5.9
All foods	32.7	11.9	115	1,573	6.8	463	7.5
Benchmark	30.0	10.0	172	1,373	8.2	593	6.9

Notes: [1]Included those age 2 to 19 and older children who were still attending schools, excluded those who were pregnant or lactating. Source: Compiled by USDA's Economic Research Service from the 1994-96 CSFII, 1-day intake.

intake. Home foods were more dense in fiber than away-from-home foods for all children (6.9 versus 6.2 grams) and for all age/gender groups (table 2).

School foods had the highest fiber density of all sources (7.1 grams per 1,000 calories), higher than home foods (6.9 grams), fast foods (5.6 grams), and restaurant foods (5.8 grams). Still, school foods contained less fiber than the benchmark 7.3 grams for all children as a group (table 2). This pattern of school foods having a higher fiber density than home foods, followed by restaurant foods, occurred among all age/gender groups except male teens. The fiber density of school foods consumed by male teens was actually lower than the fiber density of restaurant foods and home foods.

As children grow older, their diets start to lag behind recommended fiber intake levels (table 4). This is not caused by declining fiber density in their overall diets, but mostly because of increasing requirements (and therefore increasing benchmark densities). This is particularly true for girls, whose fiber density remains fairly constant (6.7-6.9 grams), but their benchmark densities increase from 5.8 grams of fiber per 1,000 calories during preschool years, to 7.5 grams of fiber per 1,000 calories at ages 6-11, and to 10.3 grams of fiber per 1,000 calories after age 11 (table 4). Older boys consumed foods less rich in fiber than younger boys (6.3 grams for ages 12-19 and 6.7-6.8 grams for others). As boys grow up, they eat out more often and away-from-home foods are less dense in fiber than home foods.

In August 1997, the Institute of Medicine of the National Academy of Sciences issued new dietary recommendations for several nutrients, including calcium. Higher calcium intakes are recommended for many Americans, especially children ages 9-18 and adults ages 25 and older. This analysis used the 1997 calcium recommendations.

Foods eaten by children contained 463 mg of calcium per 1,000 calories, compared with the benchmark 530 grams of calcium per 1,000 calories

Table 3
As Children Grow Up, Their Diets Worsen

Nutrient	Calories	Total fat	Saturated fat	Cholesterol	Sodium	Fiber	Calcium	Iron
	Kcal	*Percent of calories*		*Mg*		*Grams*	*Mg*	
Daily intake:								
All children[1]	1,961	33.0	12.0	225	3,088	13.1	907	14.9
Boys	2,161	33.3	12.1	248	3,406	14.2	999	16.6
Girls	1,748	32.7	11.9	200	2,750	11.9	810	13.0
Boys 2-5	1,580	32.7	12.4	188	2,445	10.8	822	12.5
Girls 2-5	1,470	32.6	12.4	182	2,300	10.0	789	11.5
Boys 6-11	2,024	33.0	12.1	228	3,188	13.6	968	16.4
Girls 6-11	1,810	32.0	12.0	200	2,811	12.2	856	13.7
Boys 12-19	2,726	33.7	12.0	313	4,334	17.2	1,160	19.9
Girls 12-19	1,894	32.6	11.6	214	3,026	13.0	777	13.5
				Percent				
Children meeting the recommendations:								
All children[1]	38	36	31	77	39	39	37	59
Boys	43	35	30	74	33	44	42	70
Girls	33	38	31	81	46	34	32	47
Boys 2-5	46	37	27	83	57	59	61	58
Girls 2-5	40	40	28	84	60	55	58	49
Boys 6-11	44	35	28	77	31	44	38	74
Girls 6-11	31	36	29	82	43	34	31	59
Boys 12-19	40	34	36	63	18	32	31	74
Girls 12-19	30	38	36	78	39	18	13	33

Notes: [1]Included those age 2 to 19 and older children who were still attending schools, excluded those who were pregnant or lactating. Source: Compiled by USDA's Economic Research Service from the 1994-96 CSFII, 1-day intake.

(table 2). As a result, only 37 percent of all children (42 percent of boys and 32 percent of girls) met their recommended calcium intake (table 3). Home foods were more dense in calcium (474 mg) than away-from-home foods (438 mg). As with fiber, school foods had the highest calcium density of all, 665 mg per 1,000 calories.

Similar to the fiber situation, as children age their diets become more calcium deficient and the deficiency is worse among girls than boys. However, unlike fiber, the problem is due to both a declining calcium density in the diet as well as increasing requirements. Foods eaten by preschool girls contained 537 mg of calcium per 1,000 calories (567 mg for home foods and 439 mg for away-from-home foods), which was higher than the benchmark of 444 mg of calcium per 1,000 calories (table 4). More than 60 percent of preschool girls met the recommended calcium intake.

Foods eaten at home by girls 6-11 contained 460 mg of calcium, and thanks to calcium-rich school foods (764 mg), away-from-home foods eaten by girls 6-11 contained 498 mg of calcium per 1,000 calories (table 4). Less than one in three girls 6-11 met their recommended calcium intake (table 3). When girls reached their teens, they choose foods less rich in calcium: the calcium density dropped to 426 mg for home foods, 381 mg for away-from-home foods, and 504 mg for school foods (fig. 1). Consequently, less than one in every six female teens met the recommended calcium intake.

Female Teens Need More Iron

The recommended daily allowances (RDA) for iron are 12 mg for males 11-18, 15 mg for females 11-50, and 10 mg for others 2 and older (National Research Council, 1989). During 1994-96, foods consumed by children had an average iron density of 7.6 mg per 1,000 calories, or 31 percent above the benchmark 5.8 mg (table 2). Close to 60 percent of all children met their recommended iron intake (table 3). Home foods were much more iron-dense than away-from-home foods (8.3 mg versus 6.0 mg) for all age/gender groups.

Female teens have the highest recommended iron intake of all children, and yet their foods contained the least amount of iron. The benchmark iron density was 7.9 mg per 1,000 calories for female teens, compared with 4.4 mg for male teens and 6.0 mg for girls 6-11. Home foods eaten by female teens contained 7.9 mg of iron (compared with 8.3 mg for girls 6-11) and away-from-home foods had 5.7 mg of iron (6.2 mg for girls 6-11). Consequently, only one in every three female teens met the recommended iron intake.

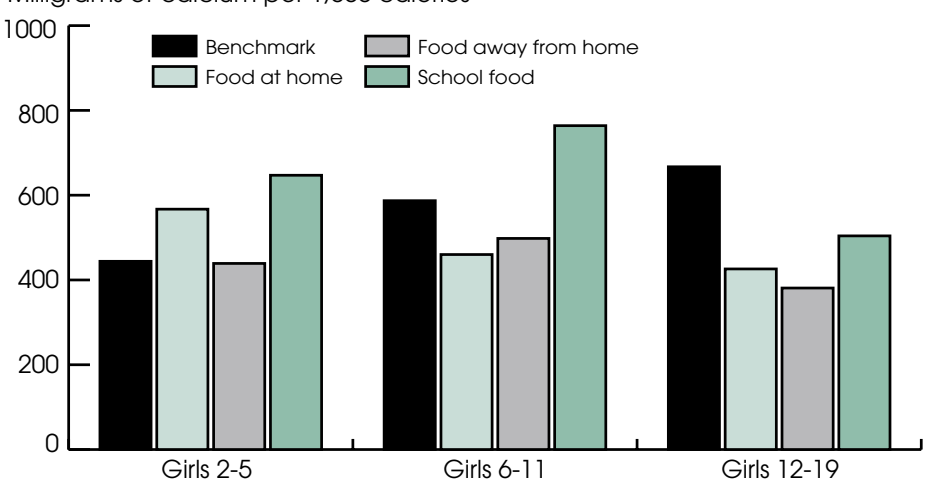
Choosing Foods More Wisely

There are two basic challenges to improve children's diets: increasing intakes of some nutrients and food components like fiber, calcium, and iron while limiting others like fat, saturated fat, cholesterol, and sodium. Away-from-home foods generally contained more of the over-consumed nutrients and food components and less of the under-consumed nutrients and food components than home foods.

Food away from home plays an increasingly important role in determining the nutritional quality of children's diets. Away-from-home foods contributed 20 percent of total calories consumed by children in 1977, rising to 32 percent during 1994-96. Children and their parents need to realize the importance of away-from-home foods in the overall diet; away-from-home foods are no longer the occasional treats they were two decades ago. Furthermore, since the increased trend toward eating out is expected to continue, nutrition policy, education, and promotion strategies need to stress making wise food choices when eating out.

Overall dietary quality tends to decline as children get older. Preschool boys had diets that compared favorably with benchmark densities for cholesterol, fiber, calcium, and iron. Among preschool

Figure 1
Older Girls Need More Calcium, Yet Female Teens Consume Foods Least Rich in Calcium



girls, diets met benchmark densities for those nutrients and also for sodium. Among teenagers, however, boys met the benchmark density only for iron, whereas girls met it only for cholesterol. Other studies have found similar declines; for example, using the Healthy Eating Index (HEI), USDA researchers found that diets were best in very young children, and declined in adolescence and young adulthood. Diets eventually improved again among older adults, but, since diet-related chronic diseases are products of lifetime eating habits, this late improvement should not be viewed with complacence. The increase in eating out that occurs as children get older appears to be a factor in the age-related decline in diet quality. Research is needed to identify other reasons why dietary quality declines during childhood and adolescence and to discover effective strategies to stem that decline.

Comparing diets with benchmark densities also demonstrates some differences among dietary improvement needs among age-gender groups. Whereas excessive intakes of fat and saturated fat occur among all children, teens face additional dietary problems. Teen girls, despite having the greatest needs for calcium and iron, have the least nutrient-dense diets for these nutrients. Male teens are the most likely group to have excessive intakes of cholesterol and sodium. These findings indicate that broad messages appropriate for all audiences need to be supplemented with targeted messages designed to reach high-needs groups. One example is the "Crash Course on Calcium" nutrition education program that the National

Table 4
Female Teens' Diets Need More Iron and Calcium, While Male Teens Need Less Cholesterol and Sodium

Food outlets for children[1]	Total fat	Saturated fat	Cholesterol	Sodium	Fiber	Calcium	Iron
	Percent of calories		*Mg*		*Grams*	*Mg*	
Boys 2-5:							
Home foods	31.5	12.0	122	1,520	6.9	539	8.4
Away-from-home foods	36.5	13.5	109	1,631	6.6	462	6.4
Fast food	37.8	13.5	94	1,577	5.4	379	5.9
Schools	34.0	13.6	104	1,600	8.1	665	7.5
Restaurants	39.7	13.5	140	1,938	6.4	367	6.0
Others	36.4	13.5	115	1,582	6.5	384	6.0
All foods	32.7	12.4	119	1,547	6.8	520	7.9
Benchmark	30.0	10.0	190	1,519	5.4	412	6.3
Girls 2-5:							
Home foods	31.7	12.1	127	1,564	6.9	567	8.3
Away-from-home foods	35.5	13.1	114	1,567	6.5	439	6.3
Fast food	39.1	14.0	114	1,627	5.6	352	6.1
Schools	32.3	12.8	109	1,517	7.8	647	6.7
Restaurants	38.6	13.8	130	1,962	6.2	397	6.7
Others	34.1	12.3	113	1,437	6.2	350	6.1
All foods	32.6	12.4	124	1,564	6.8	537	7.8
Benchmark	30.0	10.0	204	1,633	5.8	444	6.8
Boys 6-11:							
Home foods	31.6	11.5	116	1,554	6.8	479	9.0
Away-from-home foods	36.2	13.4	105	1,619	6.4	477	6.2
Fast food	38.3	13.6	99	1,655	5.3	342	6.0
Schools	36.2	14.8	111	1,630	7.5	724	6.1
Restaurants	38.3	12.8	136	1,626	5.4	319	6.0
Others	32.6	11.6	87	1,557	6.5	346	6.6
All foods	33.0	12.1	113	1,575	6.7	478	8.1
Benchmark	30.0	10.0	148	1,186	6.7	525	5.1

Continued—

Institute of Child Health and Human Development launched in partnership with a coalition of government, private sector, and medical groups. This program targets teen girls by using role models such as young female Olympic athletes in the popular "milk moustache" campaign. A similar program targeting cholesterol and sodium intake might be useful for teen boys.

Different approaches are needed to address different age groups and different sources of away-from-home foods. For example, although school foods contributed an average of 9 percent of children's total calories during 1994-96, the importance of school foods to a child's diet was highest among children ages 6-11 years. Although school foods tended to be high in fat, saturated fat, and sodium, they also provided the highest amounts of fiber and calcium—nutrients in short supply in most children's diets. In an effort to educate people about healthier diets and better food choices, USDA put forth the School Meals Initiative for Healthy Children. The initiative has devoted considerable resources to developing and disseminating educational materials for use with food-service staff, students, teachers, parents, and the community.

In 1994-96, fast-food places contributed an average of 10 percent of children's total calories. The contribution rises with children's age, from 7 percent among preschoolers to 15 percent among teen boys. Fast foods consumed by children were relatively high in fat, saturated fat, and sodium, and low in fiber and calcium, compared with home foods. The nutritional composition of fast foods is most likely to be influenced by consumer demand.

Table 4
Female Teens' Diets Need More Iron and Calcium, While Male Teens Need Less Cholesterol and Sodium—*Continued*

Food outlets for children[1]	Total fat	Saturated fat	Cholesterol	Sodium	Fiber	Calcium	Iron
	Percent of calories		*Mg*		*Grams*	*Mg*	
Girls 6-11:							
Home foods	31.6	11.4	114	1,548	7.0	460	8.3
Away-from-home foods	35.6	13.4	104	1,564	6.3	498	6.2
Fast food	37.5	13.3	91	1,580	6.1	363	5.7
Schools	35.6	14.5	105	1,620	7.7	764	6.8
Restaurants	37.3	12.8	163	1,641	5.1	368	5.6
Others	33.4	12.2	100	1,463	5.4	343	6.1
All foods	32.9	12.0	111	1,553	6.7	473	7.6
Benchmark	30.0	10.0	166	1,326	7.5	587	6.0
Boys 12-19:							
Home foods	31.9	11.2	118	1,590	6.6	437	8.1
Away-from-home foods	36.9	13.4	109	1,589	5.7	405	5.8
Fast food	38.4	13.8	105	1,594	5.4	358	6.0
Schools	38.5	15.3	101	1,641	6.3	620	5.6
Restaurants	38.2	11.7	137	1,804	7.7	335	6.5
Others	31.8	11.4	113	1,423	5.0	290	5.3
All foods	33.7	12.0	115	1,590	6.3	426	7.3
Benchmark	30.0	10.0	110	880	7.2	477	4.4
Girls 12-19:							
Home foods	30.8	11.0	118	1,609	7.3	426	7.9
Away-from-home foods	36.0	12.7	103	1,576	6.1	381	5.7
Fast food	38.1	13.8	104	1,625	6.1	370	6.0
Schools	37.8	13.8	891	554	6.4	504	5.3
Restaurants	38.9	13.3	154	1,616	5.8	344	5.7
Others	31.6	10.6	911	531	6.2	322	5.7
All foods	32.6	11.6	113	1,598	6.9	410	7.1
Benchmark	30.0	10.0	158	1,267	10.3	687	7.9

Notes: [1]Included those age 2 to 19 and older children who were still attending schools, excluded those who were pregnant or lactating. Source: Compiled by USDA's Economic Research Service from the 1994-96 CSFII, 1-day intake.

Strategies that promote nutrition need to encourage both parents and children to make the most healthful choices available from among the various menu items and to demand a wider range of nutritious options.

Conclusions

A healthy diet promotes health and prevents disease. Good eating habits ideally should be formed in childhood and adolescence. These habits can last a lifetime—for example, researchers at the National Cancer Institute found that the habit of eating fruits and vegetables since childhood led to higher intakes of those foods in adulthood. Unfortunately, current data suggest that children today are developing less favorable eating habits, and dietary quality actually declines as they grow up. Food choices when eating out may contribute to this decline. Nutrition educators may need to promote healthy eating choices as eating out continues. USDA has taken action to improve the nutritional quality of school meals and to encourage more nutrition education in schools. These efforts should be helpful; however, effective strategies for improving food choices in other locations, such as fast-food establishments, and for reaching groups of children with especially poor diets, such as teenage girls, are needed.

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Causes and Consequences of Fast Food Sales Growth

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With today's hectic lifestyles, time-saving products are increasingly in demand. Perhaps one of the most obvious examples is fast food. The rate of growth in consumer expenditures on fast food has led most other segments of the food-away-from-home market for much of the last two decades. Since 1982, the amount consumers spent at fast food outlets grew at an annual rate of 6.8 percent (through 1997), compared with 4.7 percent growth in table service restaurant expenditures. The proportion of away-from-home food expenditures on fast food increased from 29.3 to 34.2 percent between 1982 and 1997, while the restaurant proportion decreased from 41 to 35.7 percent (Clauson).

At roughly $109.5 billion in 1997, fast food sales are approaching the amount spent at table service restaurants ($114.3 billion in 1997, including tips), despite fast food's much lower average cost per meal. Between 1990 and 1997, fast food prices rose only an average of about 2 percent per year, according to the Consumer Reports on Eating Share Trends (CREST) data, implying increased consumption caused the majority of expenditure growth.

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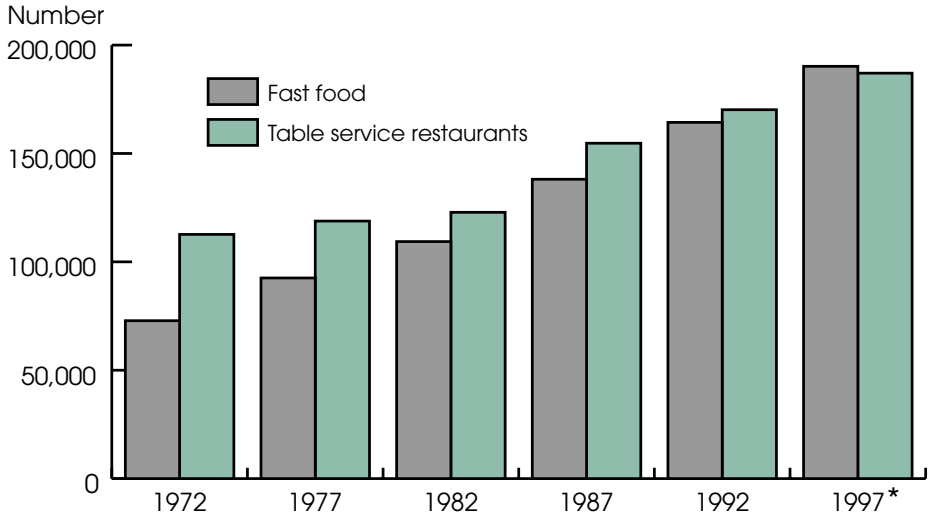
Demand for Convenience Drives Expenditures

People want quick and convenient meals; they do not want to spend a lot of time preparing meals, traveling to pick up meals, or waiting for meals in restaurants. As a result, consumers rely on fast food. Knowing this, fast food providers are coming up with new ways to market their products that save time for consumers. For example, McDonald's currently has outlets inside nearly 700 (out of 2,374) Wal-Mart stores across the United States, and almost 200 outlets in Chevron and Amoco service stations. These arrangements are becoming more common in the fast food industry. Consumers can combine meal-time with time engaged in other activities, such as shopping, work, or travel. This idea shapes the growth strategies of most firms in the industry—strategies that can be characterized by this passage from the 1994 McDonald's Annual Report (*The Annual*):

> McDonald's wants to have a site wherever people live, work, shop, play, or gather. Our Convenience Strategy is to monitor the changing lifestyles of consumers and intercept them at every turn. As we expand customer convenience, we gain market share.

The number of fast food and restaurant outlets in the United States has risen steadily over the past 25 years (fig. 1). Although the official 1997 United States Census count has not yet been released, it is expected that, for the first time, the number of fast food establishments has surpassed the number of table service restaurants. The rapid rate at which the fast food industry continues to add outlets is as much a reflection of consumer demand for convenience as it is a reflection of demand for fast food itself. Expanding the number of outlets increases accessibility, thus making it more convenient for consumers to purchase fast food. Especially in recent years, much of the expansion has been in the form of "satellite" outlets, similar to the McDonald's outlets mentioned above. These tend to be smaller in size, with little or no seating capacity, and are often in nontraditional locations, such as office buildings, department stores, airports, and gasoline stations; locations chosen specifically to maximize convenience and consumer accessibility. The 1992 Census of Retail Trade reports that roughly 23 percent of all fast food establish-

Figure 1
Number of Restaurant and Fast Food Outlets in the United States



Notes: *Projected. Source: Census of Retail trade; National Restaurant Association.

ments do not have seating for on-premise dining, catering instead exclusively to consumers who "eat on the run."

Unique Characteristics of Fast Food

Rising incomes, longer workdays, and a growing tendency for both spouses to hold full-time jobs are widely credited for the rise in away-from-home expenditures of all types, but fast food especially benefits from these trends. The fast food industry focuses heavily on rapid consumer turnover, speed of service, and take-out sales. Aside from obvious menu differences, fast food is less expensive than table service restaurant meals, has a larger lunchtime clientele, and is sold by firms that are predominantly franchised—which provides consistency in terms of product quality and menu offerings (table 1). Dollar sales per fast food outlet nearly match sales per full-service restaurant, despite higher meal prices and greater seating capacity at restaurants.

CREST data report that off-premise traffic accounted for just over 64 percent of all fast food sales in 1997, a figure which has been increasing slowly, but steadily, for some time. In 1990, just over 61 percent of fast food sales were for off-premise consumption. The dominant form of off-premise dining in the foodservice industry is carry-out, but the drive-thru, a concept that Wendy's introduced in 1974, is especially important in fast food. Company records show that about 60 percent of the sales at Burger King and 54 percent at McDonald's are made at the drive-thru.

In the fast food pizza segment, delivery dominates, with firms like Dominos, Papa Johns, and many independents focusing almost exclusively on delivery sales. Pizza Hut began delivery service in 1986, and today 34 percent of the units are devoted exclusively to delivery (offering no on-premise dining capacity). Systemwide, off-premise dining accounts for almost 60 percent of Pizza Hut's sales, and 63 percent of all establishments offer delivery service. Table 2 reports the percentage of off-premise sales for some of the largest firms in the industry.

Increasing Competition from Supermarkets

Most fast food chains emphasize convenience and low prices by offering a narrow range of menu items, which are usually based around "hand-held" foods. However, firms like Boston Market, Koo Koo Roo, and Kenny Roger's Roasters are blurring the lines between fast food, casual dining, and supermarket foodservice by expanding menus to include fully prepared, multi-course meals for eat-in or carry-out. These firms promote a "home-cooked" image by offering entrees such as ham, meatloaf, roast beef, and baked chicken, along with numerous vegetable choices. This type of fare, dubbed Home Meal Replacements (HMR's), is intended to eliminate the need to cook at home by providing a wide variety of higher quality foods that are as convenient and affordable as fast food.

Many supermarkets are capitalizing on the popularity of HMR's by increasing the quality, variety, and promotion of their own HMR offerings. Ronald Larson provides a detailed overview of this market. Supermarket HMR's are often designed to be easily reheated in the oven or the microwave at home, and can be stored for several days in the refrigerator without significant reductions in quality. This provides a certain advantage over most traditional fast food offerings, which are usually intended for immediate consumption. The widespread adoption of microwave ovens by United States households (now in nearly 90 percent of homes) contributes to the convenience of HMR's for takeout.

Estimates of 1997 sales of prepared meals and components at supermarkets vary widely, ranging

Table 1
Selected Characteristics of Restaurants and Fast Food Firms

Item	Fast food outlets	Restaurants, lunchrooms
	Dollars	
Estimated average cost per meal[1]	4.27	10.71
Annual sales per outlet ($1,000)	472.71	500.51
	Percent	
Percent of total sales during:		
Breakfast (6-11 a.m.)	9.94	7.80
Lunch (11 a.m. to 5 p.m.)	46.88	31.91
Dinner (5-11 p.m.)	40.32	57.19
Overnight (11 p.m. to 6 a.m.)	2.86	3.10
	Number	
Paid employees per outlet	17.56	16.14
Average seats per outlet	48.14	83.84
	Percent	
Percent of outlets franchised	52.19	9.97
Operated by franchisee	32.38	4.44
Top three primary menu themes in each industry, based on total sales[2]	Hamburger (43.56) Pizza (15.04) Chicken (8.83)	Seafood (10.27) Italian (9.37) Mexican (6.74)

Notes: [1]Based on a sales weighted average of seven average cost-per-meal categories. [2]Numbers in parentheses are percent of total category sales. Source: Compiled from the 1992 Census of Retail Trade Miscellaneous Subjects series.

from just under $7 billion to about $14 billion (see "Grocery Industry Courts Time-Pressed Consumers with Home Meal Replacements," this issue). By comparison, the entire sales of the varied-menu/casual-dining segment (Applebee's, Chili's, TGI Fridays, etc.) was $20 billion in 1997 (Paul). Though supermarkets tend not to be as conveniently located as most fast food outlets, consumers clearly enjoy the quality and variety of many of their prepared meal offerings. Plus, the Food Marketing Institute reports that consumers average 2.2 trips to the grocery store per week, giving them ample opportunity to regularly purchase HMR's. These could become a major competitor to traditional fast food.

Growth in Fast Food Affects Many Agricultural Industries

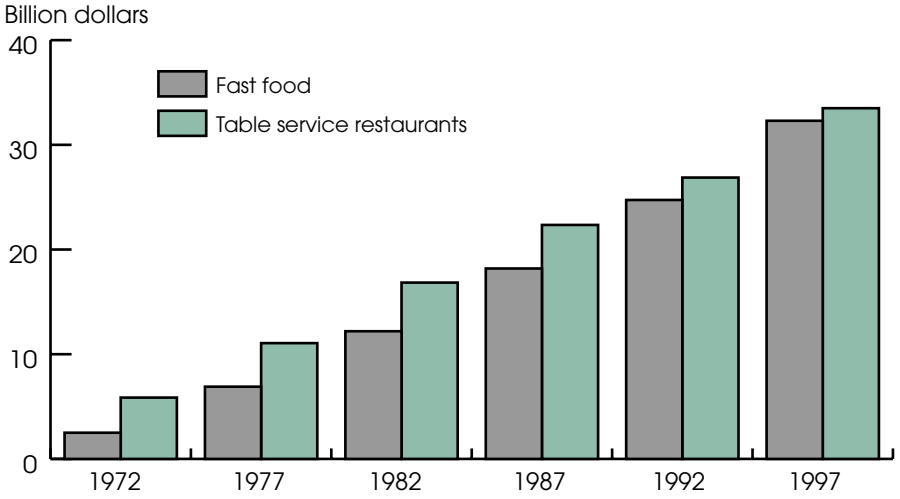
Food and drink purchases by the restaurant and fast food industries have increased considerably over the past 25 years (fig. 2). The growth in fast food expenditures is reflected in the food and beverage purchases by this industry. The limited menu aspect of most of the major chains means that their growth can have an enormous effect on selected segments of the agricultural marketing system. For example, Pizza Hut uses approximately 2.5 percent of all the milk produced each year (over 3.2 billion pounds) to meet its annual cheese requirements. When it introduced its Stuffed Crust Pizza in 1995, Pizza Hut required approximately 17.5 million pounds of string cheese, almost 50 percent of the total United States production at that time. McDonald's 1996 beef usage

Table 2
Off-Premise Dining at Major Fast Food Restaurants

Firm	Sales for dining off-premise
	Percent
Burger King	75
KFC	71
Wendy's	65
Pizza Hut	60
Taco Bell	59
McDonald's	60 +

Note: Source: Company Records.

Figure 2
Annual Food and Drink Purchases Made by U.S. Restaurant and Fast Food Firms



Note: Source: National Restaurant Association, *Foodservice Industry in Review,* various issues.

exceeded 644 million pounds, and potato usage was about 1.35 billion pounds, approximately 2.5 and 3.2 percent of total United States production, respectively.

Agricultural Producers, Processors, and Food Suppliers

Menu changes by any major firm can have enormous, almost immediate, effects on particular agricultural industries. McDonald's introduced Chicken McNuggets to its domestic menu in 1983; by 1984, it became the world's second largest purveyor of chicken. In 1996, chicken usage at McDonald's exceeded 256.7 million pounds, accounting for over 1.4 percent of total United States broiler production (boneless equivalents). After public concern over saturated fat intake led the three largest fast food hamburger chains—McDonald's, Wendy's and Burger King—to switch in 1990 from cooking with beef tallow to cooking with vegetable oils, the demand for vegetable oils increased by 250-300 million pounds per year (Lipton, et al.), which equals roughly 6 percent of the total 1990 vegetable oil production.

The fast food industry's large-scale, nonseasonal demand for particular food products of consistent quality has prompted vertical coordination within the agricultural production system. Many of the major chains have contractual arrangements with food suppliers, which often reach all the way back to the agricultural producer. The J.R. Simplot company is the world's largest supplier of frozen french fries, due in large part to its contractual arrangement with McDonald's. Simplot in turn contracts with over 1,000 United States potato growers producing over 100,000 acres—in addition to that grown directly by Simplot—to supply this demand. Keystone Foods is the world's largest supplier of hamburgers because of its arrangement to supply McDonald's with frozen patties. Contracts and other vertical arrangements also provide fast food chains with stable supplies of specialty vegetables, such as lettuce, tomatoes, and onions.

Vertical coordination of the supply chain, especially through production contracts, helps ensure that fast food firms receive a constant supply of the desired input without the degree of price volatility often found in the open market. Suppliers (including agricultural producers) benefit from the reduced price volatility and the assurance of having a buyer for all of their production. To maintain consistent quality of agricultural inputs, the firms at the retail end of the supply chain often make primary management decisions regarding production practices.

Agricultural inputs comprise a relatively small proportion of the price of a meal at most foodservice outlets. Food expenditures typically account for less than one-third of the cost of a meal (table 3), and since much of this food is processed before it enters the retail outlet, the farm value of these inputs is even less. Therefore, changes in the price of farm commodities have an exceedingly small effect on restaurant and fast food prices, and vice-versa. Many other factors influence menu prices, including the general inflation rate, wage rates, and competition between firms.

Consumers

The fast food industry receives a lot of attention regarding its effect on consumers' nutrient intake and the public health. The switch to vegetable oils for deep-frying by the largest fast food hamburger chains was a response to consumers' concern over the health effects of saturated fat intake. Much of the long-term decrease in per capita consumption of raw agricultural commodities, in favor of more highly processed ones, can be traced at least in part to the growth of fast food. Since 1970, annual per capita use of fresh potatoes decreased from

Table 3
Cost of Goods Sold at Restaurants and Fast Food Outlets

Operating expenditures	Fast food restaurants	Full-service restaurants (average check per person under $10)	Full-service restaurants (average check per person $10 and over)
		Percent	
Cost of food sold	28.4	32.2	30.0
Cost of beverages sold	1.2	3.2	7.8
Salaries, wages, employee benefits	27.9	31.9	31.1
Restaurant occupancy costs	7.4	5.2	5.3
Direct operating expenses	6.7	7.0	6.5
Marketing and entertainment	5.8	2.5	3.4
Repairs, maintenance, and depreciation	5.1	4.0	3.4
Utility service	2.8	3.2	2.3
Other[1]	5.2	7.2	6.7
Income before income tax	9.5	3.6	3.5
Total	100.0	100.0	100.0

Notes: [1]General and administrative expenses, corporate overhead, and miscellaneous expenses. Source: National Restaurant Association, *Restaurant Industry Operations Report.*

61.8 pounds to less than 50 in 1995, while consumption of frozen potatoes (mostly french fries) increased from 28.5 pounds to over 58 per capita (Lucier and Plummer). Per capita fluid milk consumption fell from 258 pounds to 211, while cheese consumption increased from 11.5 pounds to nearly 27 pounds between 1970 and 1995 (Miller). Consumption of carbonated soft drinks increased from 24.3 gallons per capita to 51.2.

Attempts to capitalize on consumer demand for healthier meal options have not always been successful. In 1991, McDonald's introduced the McLean Deluxe, which used a 91 percent fat-free beef patty formulated with carrageenan, a derivative of seaweed, but slow sales and poor public acceptance led to its demise after only a few years (Manchester). Taco Bell introduced a line of low-fat menu items in 1994, dubbed "Border Lights," but these were also largely abandoned due to slow sales. Consumers are not always willing to sacrifice the consistency and flavor that fat often contributes. Other low-fat items, such as the grilled chicken sandwich, have proven more successful and remain on the menus of most of the major hamburger chains. McDonald's version, introduced in 1994, contains only 4 grams of fat. Dieticians, nutritionists, and economists continue to debate the role that fast food plays in the health and well-being of United States consumers.

Food safety is also an issue. The large-scale production that characterizes the firms supplying the fast food industry, and the high volume of customer traffic through most fast food outlets, mean that a small amount of contamination at any point in the supply chain can severely disrupt production, consumer confidence, and possibly public health. The most recent example was the 25 million pounds of ground beef recalled by Hudson Foods in 1997, due to possible *E. coli* contamination. As a primary supplier to Burger King, as many as 25 percent of the nearly 7,800 outlets nationwide were left without hamburgers for 24 to 48 hours. In 1993, nearly 700 reported illnesses in the Pacific Northwest, and four children's deaths, were linked to undercooked hamburgers at Jack-in-the-Box fast food restaurants. This led to more stringent meat inspections, and emphasized the importance of accurate traceability of products over the supply chain to identify sources of contamination. Tight vertical linkages make it easier to trace the journey that food products made between the farm and the retail outlet, increasing the likelihood that contamination can be contained once identified.

The Future of the Industry

The United States economy is becoming increasingly service-oriented, and over the past several decades, the foodservice industries that offer the highest levels of convenience have been rewarded with strong sales growth. In the face of rising incomes and increasingly hectic work schedules, a nearly insatiable demand for convenience will

continue to drive fast food sales. Firms will strive to find ways to make their products even more accessible. Many fast food outlets now have two or more drive-through windows, and most firms have only scratched the surface when it comes to satellite outlets or other alternative points of distribution. Miniaturized outlets, even vending machines, offering hot fast food meals might one day be as common in public buildings as soft-drink machines are today.

Even if incomes stagnate or attitudes change, consumers are unlikely to return to meal preparation at home on a large scale. Several studies have found not only a dramatic nationwide decline in time allocated to at-home meal preparation, but also a sharp decline in cooking knowledge, especially among young consumers (see Larson for a review). This suggests that even if consumers choose to spend more time at home, for family or other reasons, much of the meal preparation will still occur elsewhere. The market for Home Meal Replacements should remain strong, and firms that successfully mimic the quality and variety of home prepared meals will excel. Many more table service restaurants, which traditionally focus on full-service in-house dining, will likely try to capture part of this market by offering take-out, and possibly experimenting with home delivery.

The value of consumer time, as well as the demand for consistent, high-quality food products, will continue to shape the food industry. Fast food, once considered a novelty, has become an increasingly significant part of the American diet. The role of convenience in this dietary shift cannot be over-emphasized, and the future growth of the rest of the foodservice industry will be driven in large part by its ability to find new ways to save consumers' time.

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Minimum Wage Increase Would Have Greater Impact on Food System Than on Overall Economy

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Increasing the minimum wage would affect the food system more than the overall economy. The food system provides a large number of jobs, particularly entry-level jobs for workers with few skills or experience. Because of this large share of low-wage, low-skill jobs, an increase in the minimum wage would disproportionately affect the employers and workers in the food system.

The minimum wage is currently $5.15 an hour. A proposal to increase it to $6.15 failed in the Senate in 1998, but demands to increase it still remain. This article examines which workers would be affected by a minimum wage increase while the next article examines how the increase would affect prices of food away from home.

In order to understand how a minimum wage increase would affect the food system, we must first know about the food system workers and their jobs. Here a demographic profile of all food system workers and the characteristics of food system jobs are presented. Understanding the demographics and jobs characteristics provide insight into how the minimum wage will affect employment and income among food system workers. Next, a look at the demographics and job characteristics of those workers who would be directly affected by a minimum wage increase is presented.

The Food System Is a Large and Growing Employer

In 1997, 13.6 million wage and salary workers were in the food system, 11 percent of all U.S. wage and salary workers. Of those, 12.6 million were employed with food system jobs as their primary jobs, and 1 million were unemployed but worked in the food system on their last job. An additional 880,000 workers had second, "moonlighting" jobs in the food system.

Four sectors comprise the food system—manufacturing of food and kindred products (12.9 percent of workers), eating and drinking places (50.9 percent), wholesale food trade (7.9 percent), and retail food trade (28.3 percent).

The 16.5-percent growth in the number of wage and salary food system workers since 1987 about matches that of the U.S. wage and salary workforce, 15 percent. Growth among the food sectors, however, varied. Eating and drinking places, wholesale food, and retail food all increased by about 20 percent between 1987 to 1997, while food manufacturing declined by 5 percent, or 84,000 workers.

The unemployment rate among food system workers in both 1987 and 1997 was higher than that experienced by the overall U.S. wage and salary workforce. Unemployed food system workers are those who were unemployed when surveyed (See box, "Methodology") and had their last job in the food system. Among the food sectors, eating and drinking places workers experienced the highest unemployment rate in 1997, almost 9 percent, almost twice the national rate of unemployment.

Demographic Profile of Food System Workers

The average age of a food system worker was 32 years old in 1997, with 20 percent of the workers under 20 years old (table 1). Eating and drinking place workers had the youngest average age, 29 years old, and one-quarter of their workers were under 20 years old. Food sys-

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Methodology

Data used in this article are from the Current Population Survey (CPS) earnings files. The CPS is a monthly survey conducted by the Bureau of the Census for the Bureau of Labor Statistics, U.S. Department of Labor. It provides detailed information on the labor force, employment, unemployment, and demographic characteristics of the U.S. labor force. The CPS derives estimates based on interviews of a national sample of about 47,000 households that are representative of the U.S. civilian noninstitutional population 16 years of age and over. Labor force information is based on respondents' activity during 1 week each month.

The earnings data are drawn from the outgoing rotation of respondents in the monthly CPS, about one-quarter of the total sample. These respondents are asked about the usual earnings on their sole or primary job. The CPS earnings file consists of all records from the monthly quarter-samples of CPS households that were subject to having these questions on hours worked and earnings asked during the year.

Most of the estimates in this article are from the 1997 CPS earnings file. Except for the estimates on food system moonlighters, the food system estimates include workers who reported their primary job in the food sectors, or, if unemployed, reported their last job in the food sectors. The U.S. estimates include all employed and unemployed wage and salary workers, age 16 and older, in the civilian labor force.

The 1987 data are from the 1987 CPS earnings file. All of these estimates are for wage and salary workers only, age 16 and older.

The 1987 and 1997 CPS surveys are not strictly comparable in that a redesigned survey was introduced in January 1994. The new survey is thought to more accurately measure those persons on layoff, job search methods used by the unemployed, the number of hours at work, the reasons for working part time, occupation and industry of the respondent, and earnings of the respondent. In addition, new data on multiple jobholding and usual hours worked are now being collected. Changes in the survey, however, are unlikely to have fundamentally affected the trends reported here.

Hourly earnings are computed by dividing usual weekly earnings by usual weekly hours; included are tips, overtime, and commissions. Since the minimum wage was $4.75 at the start of 1997, and was raised as of September 1, 1997, to $5.15, the range of $4.75-$5.15 is considered the 1997 minimum wage for this analysis.

The 11 education and training categories from the Office of Employment Projections, BLS, were applied to the CPS data by the author. The categories are:

- First professional degree (for example, law, medicine, dentistry, and clergy).
- Doctoral degree.
- Master's degree.
- Work experience plus bachelor's or higher degree (mostly managerial occupations that require experience in a related nonmanagerial occupation).
- Bachelor's degree.
- Associate's degree.
- Postsecondary vocational training (these occupations require a training program and may also require a licensing exam).
- Work experience in a related occupation (some occupations are supervisory or managerial occupations, but also others require skills and experience gained in other occupations such as police detectives, who are selected based on their experience as police patrol officers).
- Long-term on-the-job training (occupations that usually require more than 12 months of on-the-job training or combined work experience and formal classroom instruction before workers develop the skills needed for average job performance, such as electrician, bricklayer, and machinist, that normally require apprenticeships lasting up to 4 years);
- Moderate-term on-the-job training (workers can achieve average job performance after 1 to 12 months of combined job experience and informal training, such as dental assistants, drywall installers and finishers, and machine operators); and
- Short-term on-the-job training (workers usually can achieve average job performance in just a few days or weeks, such as cashier, bank teller, and messenger).

The author combined the last three categories—long-term, moderate-term, and short-term on-the-job training—to define low-skill occupations. The combination of these three education and training requirements categories is defined as low-skill since these occupations do not have formal training or experience as a requirement. For more information on the education and training categories, see U.S. Department of Labor, Bureau of Labor Statistics, *Occupational Projections and Training Data*, Bulletin 2501, January 1998.

Estimates on job tenure are from the February 1996 CPS supplement on Displaced Workers, Job Tenure, and Occupational Mobility. This supplement is done every 2 years. Only wage and salary workers 16 years or older are included; for the food system estimates, only workers who reported their primary job in the food system are included.

tem workers were considerably younger than the entire U.S. wage and salary workforce, which had an average age of 38, with only 6 percent under 20 years old. Due partly to its relative youth, the food system workforce was less educated than the U.S. workforce; only a third of the workers had any college, versus over half in the U.S. workforce. But education levels were lower for food system workers even looking only at those age 25 or older—almost two-thirds of food system workers had at most a high school diploma, versus 44 percent nationwide.

Food system workers were located around the United States in roughly the same proportions as all wage and salary workers. For example, 35 percent of food system workers lived in the South in 1997, the same proportion of all wage and salary workers in the South. An interesting exception is that 37 percent of food manufacturing workers lived in nonmetropolitan areas. Since nonmetro areas account for about 20 percent of all U.S. wage and salary workers, food manufacturing workers were disproportionately located in nonmetro areas. Since manufacturing is an important employer in nonmetro areas, this nonmetro concentration of food manufacturing workers is not surprising.

Slightly over half of all food system workers in 1997 were male, the same as in the U.S. wage and salary workforce. However, gender composition differs among the food sectors. Both eating and drinking places and retail food sectors were more than half female, while food manufacturing was two-thirds male, and wholesale food, three-quarters male.

The demographic composition of food system wage and salary workers has changed little between 1987 and 1997. Food system workers have aged, on average, but so has the U.S. wage and salary workforce. Other measures of food system workers have remained the same over time.

The 1 million unemployed food system workers were younger, on average, than all food system workers and consequently had lower education levels. The average time food system workers had been searching for a job when surveyed, 15 weeks, was about the same as for all industries, 14 weeks. However, the proportion who had been looking 15 weeks or more was considerably longer for food system unemployed, 31 percent versus 17 percent for all industries.

Job Characteristics and Earnings of Food System Workers

Only 64 percent of food system employees usually worked a full-time schedule, 35 or more hours a week (table 2). This is considerably less than for U.S. wage and salary employed, of which 82 percent worked full time. There is a distinct split among the food sectors—almost 90 percent of food manufacturing and wholesale food workers had full-time schedules, while only 54 percent of eating and drinking places workers and 61 percent of retail food workers had full-time schedules. In addition, about 80 percent of food system employees were paid on an hourly basis, versus 62 percent in all of U.S. wage and salary employed. These figures are little changed from 1987.

About 5 percent of food system workers held two or more jobs during the survey week. This percentage is about the same as the 6-percent share of U.S. wage and salary employed.

Union membership in the food system has declined from 14 percent in 1987 to 11 percent in 1997, an absolute decline of about 167,000 food system workers. Among the food sectors, the wholesale food sector declined the most in union membership, falling from 21 percent in 1987 to 12 percent in 1997, although this change represents only about 51,000 workers. Eating and drinking places had the smallest percentage decline, from 2.1 percent in 1987 to 1.5 percent in 1997; this represents 104,000 workers. These declines in union membership followed a nationwide trend down from 17 percent in 1987 to 14 percent in 1997.

Earnings for food system employees are considerably lower than for other U.S. wage and salary employed. Food system employees had a median hourly earnings of $7.08 in 1997, whereas across U.S. wage and salary employees the median hourly earnings were $11.00. Although food system hourly earnings were lower than the U.S. median, there has been a gain—in 1987 the food system median was 60 percent of the U.S. wage and salary median, and in 1997 it had risen to 64 percent.

Median hourly earnings vary considerably among the food sectors. Wholesale food wage and salary employees had the highest median, $11.84, about the same as the median for all wholesale sector wage and salary employees. Food manufacturing employees earned $10.45 per hour, high relative to other food system employees, but lower than the total manufacturing wage and salary median of $12.10 per hour. Eating and drinking places and retail food employees had the

lowest medians, $6.25 per hour and $7.00 per hour, respectively. Both of these sectors are part of total retail trade, and their medians are less than the median hourly earnings for all retail wage and salary employees, $7.25.

Why are earnings so low in the food system? Part of the explanation is due to the relative youth of the workers, the low education levels, the low union membership, and the large share of part-time schedules. In addition, over 75 percent of the jobs in the food industry are in occupations that are characterized by low-skill requirements, whereas only 54 percent of the U.S. wage and salary workforce are in low-skill occupations. Clearly these factors are related—low union membership may result in fewer full-time jobs, and younger workers who have attained less education are going to be hired for lower-skill jobs.

Low job tenure is an additional factor contributing to the low earnings of food system workers. Generally employees' earnings increase with seniority. In 1996, the most current data available, employed food system workers had been working for their employer on average 4.7 years, versus a 6.9-year average for the United States. Eating and drinking places workers had the shortest average job tenure, 3.0 years, while food manufacturing had the highest,

Table 1
Demographic Characteristics of Food System Workers

Item	1987	1997					1997
	Total food	Total food	Food manufacturing	Eating and drinking places	Wholesale food	Retail food	U.S. workforce (all industries)
				Thousands			
Number of workers	11,665	13,591	1,754	6,918	1,077	3,842	124,745
Employed	10,678	12,561	1,630	6,321	1,015	3,596	118,883
Unemployed	987	1,030	125	597	62	246	5,862
				Percent			
Unemployment rate	8.5	7.6	7.1	8.7	5.8	6.4	4.7
				Years			
Average age	31.0	32.2	38.5	29.1	39.0	33.0	38.1
				Percent			
Less than 20 years old	20.5	19.9	3.8	26.4	3.2	20.4	5.9
Male	50.9	51.7	65.8	46.5	75.6	47.8	53.0
Race:							
White	84.9	82.7	78.8	81.0	87.4	86.2	83.7
Black	11.5	12.0	16.1	12.8	9.3	9.6	11.9
Other	3.6	5.3	5.1	6.3	3.3	4.3	4.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Hispanic	9.1	14.9	18.1	15.7	18.0	11.1	10.4
Education level:							
Less than high school	23.5	29.5	24.7	34.1	18.1	26.4	13.8
High school diploma	43.1	37.6	43.2	33.9	37.6	41.6	32.4
Some college	25.6	24.8	20.4	25.5	26.9	24.9	28.4
College degree or more	7.7	7.1	9.5	5.6	15.2	6.3	25.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Continued—

8.1 years. Fifty-five percent of food system workers had been on their jobs less than 3 years, compared with only 40 percent for all U.S. wage and salary employed (fig. 1). Three years of employment is considered necessary to attain employer- and industry-specific skills that translate into higher earnings. Even looking only at workers age 25 or older, food system workers still have shorter tenures, 6.6 years versus 7.8 years for all U.S. wage and salary workers.

The shorter tenures of food system workers are associated with the higher unemployment rates of the food industries compared with the U.S. wage and salary unemployment rate. With shorter tenures come more attrition and job changing, so the food system would have higher frictional unemployment, that is, unemployment due to the difficult matching process between workers and employers, and to new entrants coming into the labor force with workers leaving it. Frictional unemployment is not usually regarded as a policy concern, unlike structural unemployment (unemployment due to occupational or regional mismatches), and cyclical unemployment (unemployment associated with the business cycle).

Table 1
Demographic Characteristics of Food System Workers—*Continued*

Item	1987	1997					1997
	Total food	Total food	Food manu-facturing	Eating and drinking places	Wholesale food	Retail food	U.S. workforce (all industries)
				Percent			
Education level, age 25 and older only:							
Less than high school	19.4	20.5	23.7	23.5	17.5	15.4	10.8
High school diploma	48.3	43.4	42.5	41.5	36.8	49.4	32.8
Some college	21.7	24.0	20.6	24.0	26.4	25.1	27.5
College degree or more	10.7	12.1	13.2	11.0	19.3	10.1	29.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Region:							
Northeast	18.2	18.2	13.8	17.2	19.9	21.6	19.5
Midwest	27.3	24.5	27.9	25.1	19.9	23.1	24.2
South	34.0	35.3	36.0	35.5	31.6	35.6	34.8
West	20.5	22.1	22.5	22.2	28.6	19.8	21.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Nonmetro	22.7	20.9	36.8	17.6	16.7	20.9	18.0
Of those unemployed:							
Weeks looking for a job (weeks)	12.7	14.9	17.5	15.3	16.0	12.6	14.4
Percent looking 15+ weeks (percent)	24.7	31.2	37.1	31.5	38.7	26.5	17.3
Average age (years)	28.5	27.8	34.4	25.7	35.3	28.0	33.5
Less than 20 years old (percent)	21.5	30.6	11.8	37.0	7.9	30.3	14.5
Education level (percent)							
Less than high school	31.2	40.9	41.0	43.8	38.1	34.2	29.2
High school diploma	42.3	36.7	40.9	31.9	34.0	47.0	35.5
Some college	21.7	19.1	14.1	20.8	18.0	18.0	24.0
College degree or more	4.8	3.3	3.9	3.5	9.9	0.8	11.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

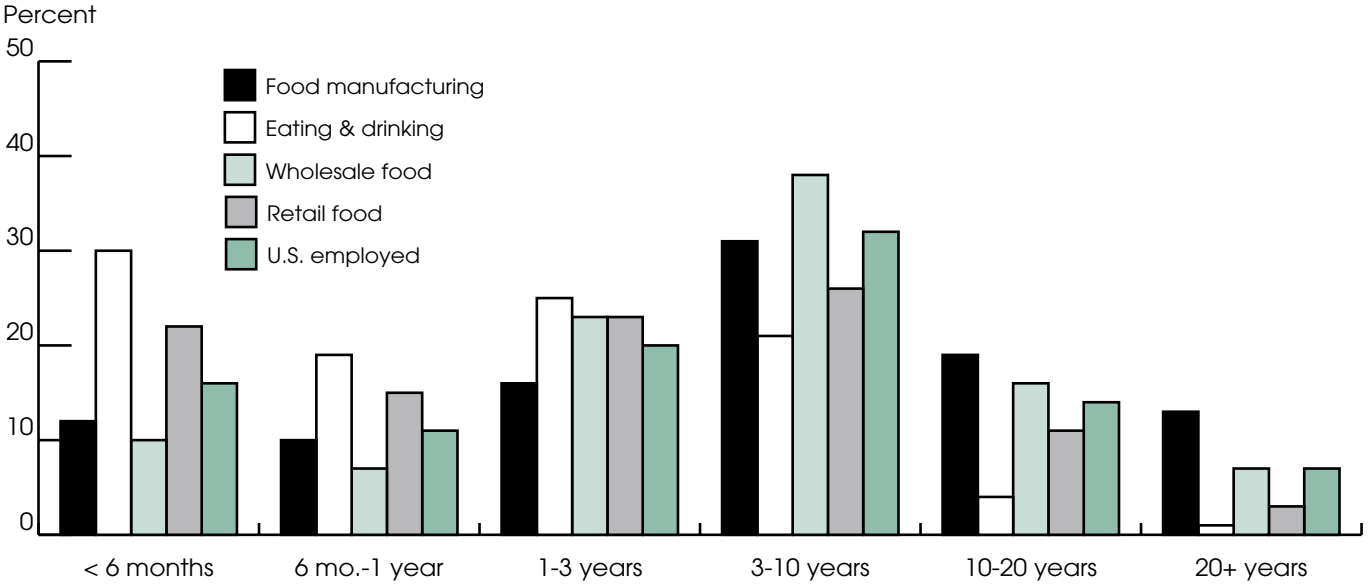
Note: Source: 1987 and 1997 CPS Earnings files, age 16 and older. Only wage and salary workers who reported primary job in the food sectors, or if unemployed, reported their last job in the food sectors, are included in the first six columns. All civilian wage and salary workers, age 16 and older are included in the U.S. workforce estimates (all industries included). Wage and salary unemployed are unemployed workers who last worked at a wage and salary job. Totals may not add to 100.0 due to rounding. Hispanics may be of any race.

Table 2
Job Characteristics and Earnings of Food System Employees

Item	1987[1]	1997					1997
	Total food	Total food	Food manufacturing	Eating and drinking places	Wholesale food	Retail food	U.S. wage and salary employed (all industries)
				Thousands			
Employed	10,678	12,561	1,630	6,321	1,015	3,596	118,883
				Percent			
Full time	62.1	63.5	89.1	54.5	86.7	60.9	82.0
Usual hours worked:							
0-20	20.4	16.9	1.9	22.3	3.7	18.1	8.5
21-34	17.5	14.0	3.0	17.2	3.5	16.3	7.3
35-39	9.0	7.9	4.3	9.9	3.4	7.3	6.0
40	36.0	34.9	59.6	25.6	51.0	35.3	51.1
41-49	7.0	5.3	9.6	3.6	7.8	5.6	6.9
50+	10.1	10.9	14.8	9.3	23.6	8.3	12.9
Varies—							
Full time	na	5.7	6.0	6.0	6.1	4.7	5.0
Part time	na	4.5	.8	6.1	.9	4.4	2.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Hourly status	80.2	80.5	75.5	83.5	53.6	84.9	61.8
Multiple jobholder	na	5.1	3.5	5.9	4.6	4.6	6.1
Union member	13.9	10.7	23.8	1.5	12.2	20.5	14.1
Low-skill occupations	87.2	78.0	75.4	79.9	69.2	78.1	54.1
				Dollars			
Median hourly earnings	4.77	7.08	10.45	6.25	11.84	7.00	11.00
				Percent			
Distribution:							
< $4.75	-	7.0	1.6	9.9	2.2	5.7	3.6
$4.75-$5.15 (minimum wage)	-	11.1	2.9	14.5	4.1	11.0	4.5
$5.15-$6.15	-	20.1	5.9	24.2	4.6	23.6	7.8
$6.15-$10.00	-	33.9	33.7	34.9	26.9	34.1	26.4
$10.00-$15.00	-	17.8	32.7	12.1	34.2	16.3	25.4
$15.00+	-	10.2	23.2	4.4	28.1	9.3	32.2
Total	-	100.0	100.0	100.0	100.0	100.0	100.0

Notes: [1]Earnings distribution is not presented for 1987 because the minimum wage was $3.35. na indicates not available. Source: 1987 and 1997 CPS Earnings files, age 16 and older. Only wage and salary employed who reported primary job in the food industries are included in the first six columns. All civilian wage and salary employed, age 16 and older are included in the U.S. employed (all industries). A full-time schedule is 35 or more hours a week. Hourly earnings computed by dividing usual weekly earnings by usual weekly hours; included are tips, overtime, and commissions. The minimum wage was $4.75 at the start of 1997, and then was raised to $5.15 as of September 1, 1997. Since this data span the year, hourly earnings for the range of $4.75-$5.15 are considered working at the minimum wage.

Figure 1
Job Tenure, 1996
Eating and drinking places have the largest share of emloyees with fewer than 3 years tenure



Source: ERS calculations based on the February 1996 Current Population survey supplement on Displaced Workers, Jobs tenure, and Occupational Mobility.

Moonlighters

A small group of 880,000 workers had a second, "moonlighting" job in the food system in 1997. About 20 percent of these moonlighters also had their primary job in the food system. The rest of the moonlighters had primary jobs in other industries. The average food system moonlighter was 33 years old, with only 9 percent under 20 years old, and half of the moonlighters were male. Not surprisingly, 85 percent of moonlighters worked a part-time schedule on their second job. However, a very busy 4 percent worked two full-time jobs.

One-Third of Food System Employees at or Just Above Minimum Wage

As presented above, low earnings characterize the food system. While only 11 percent of food system employees earned the minimum wage in 1997—which was raised from $4.75 to $5.15 an hour on September 1, 1997—an additional 20 percent of food system employees earned between the minimum wage and a $6.15 level recently considered by Congress. These workers earning $4.75-$6.14 an hour would most likely be directly affected by an increase in the minimum wage. This constitutes almost one-third, 3.9 million, of all food sector employees, considerably greater than the 12 percent of U.S. wage and salary employees in these same earnings groups. Clearly a minimum wage increase would have greater effect on the food system than on the overall economy.

Of these workers, 43 percent were male, 40 percent were under 20 years old, and 47 percent lived with a parent (table 3). Over 90 percent of the jobs were in low-skill occupations, and two-thirds were part-time jobs.

A small number of food system employees earned less than the minimum wage in 1997. These workers may have been in jobs not covered by the minimum wage, they may have been paid illegally less than the minimum wage, or they may have misreported either their usual weekly earnings or usual weekly hours when surveyed (see box, "Minimum Wage Coverage.") A minimum wage increase would not directly affect these workers or if misreported, is not measurable.

One argument against a minimum wage increase is that those most likely to benefit are young workers in nonpoor households who do not support a household. Proponents of the increase argue

Table 3
Food System Employees with Hourly Earnings of $4.75-$6.14, 1997

Item	Total food	Food manufacturing	Eating and drinking places	Wholesale food	Retail food	U.S. employed (all industries)
			Thousands			
Number of workers	3,815	141	2,380	84	1,210	13,140
			Percent			
Nonmetro	23.6	43.8	20.7	18.8	27.3	23.4
			Years			
Average age	27.0	35.9	25.6	35.4	28.0	31.9
			Percent			
Less than 20 years old	40.1	6.2	43.2	7.8	40.1	22.9
Male	43.2	65.4	43.7	68.1	39.9	40.5
Race:						
White	82.5	63.1	81.3	76.2	87.6	79.6
Black	12.7	25.4	13.7	19.4	8.8	15.7
Other	4.7	11.4	4.9	4.5	3.6	4.7
Hispanic	16.8	28.8	18.4	40.5	10.7	18.5
Reference person or spouse	38.1	64.0	35.3	63.7	38.7	53.0
Child of reference person	46.9	19.6	48.4	13.9	49.3	33.1
Other relationship	15.0	16.4	16.3	22.4	12.0	13.9
Household income distribution:						
< $12,499	24.8	33.1	27.0	22.7	19.5	24.1
$12,500-$14,999	5.5	6.6	5.5	2.8	5.3	6.2
$15,000-$19,999	7.3	9.5	6.9	15.4	7.4	8.3
$20,000-$24,999	8.6	14.9	7.8	11.7	9.0	9.4
$25,000-$39,999	20.9	17.5	20.1	17.6	23.2	21.4
$40,000+	33.0	18.3	32.5	29.7	35.4	30.6
Education level:						
Less than high school	46.6	46.4	48.5	51.8	42.6	35.0
High school diploma	31.9	40.6	29.7	31.5	35.3	34.7
Some college	19.0	9.7	19.7	12.1	19.1	24.7
College degree	2.1	1.3	1.8	4.1	2.5	4.6
Advanced degree	.4	2.0	.3	.4	.4	1.1
Low-skill occupations	91.3	88.7	90.2	97.4	93.4	82.0
Multiple jobholder	4.5	2.9	5.1	2.0	3.9	5.4
Full time (schedule)	35.4	85.8	33.8	81.0	29.6	54.8
Usual hours worked:						
0-20	30.3	5.3	31.1	13.2	32.8	27.5
21-34	20.0	8.9	19.0	5.9	24.3	17.6
35-39	9.8	6.7	11.6	7.1	6.8	9.0
40	22.2	72.5	18.8	66.7	20.0	39.2
41-49	1.3	2.2	1.3	3.7	1.2	2.5
50+	2.1	4.4	2.1	3.5	1.6	4.1
Varies—						
Full time	-	-	-	-	-	-
Part time	14.3	-	16.2	-	13.2	-

Note: Source: 1997 CPS Earnings file, age 16 and older. Only wage and salary workers who reported their primary job in the food industries are included here in the five food industry columns; all civilian wage and salary employed, age 16 and older in the civilian labor force earning $4.75-$6.14 are included in the sixth column. A full-time schedule is 35 or more hours a week. Hourly earnings computed by dividing usual weekly earnings by usual weekly hours; included are tips, overtime, and commissions. Median hourly earnings were applied to those workers whose hours varied for food system workers in order to retain those observations. Consequently, hours-vary workers are included in the food system figures but not in the civilian labor force figures. The minimum wage was $4.75 at the start of 1997, and then was raised to $5.15 as of September 1, 1997. Since this data span the year, hourly earnings for the range of $4.75-$5.15 are considered working at the minimum wage. Reference person or spouse used as a proxy for head of household.

that the beneficiaries indeed support a household or are in a household below the poverty threshold. Support for both arguments can be seen in the food system.

The characterization of teenagers earning the minimum wage or just above in after-school jobs is especially true in the eating and drinking places and retail food sectors. Almost half of the workers in these two sectors who would most likely be affected by the proposed increase in the minimum wage lived with a parent, about 40 percent were teenagers, and only one-third were working full-time jobs. Over two-thirds of these workers were in households with a total household income level of $15,000 or more. At the same time, however, about one-third of low-wage eating and drinking place workers and one-quarter of low-wage retail food workers were in households with incomes under $15,000, which is under the poverty threshold for a family of four. In addition, 35 and 39 percent respectively were the reference person or the spouse of the reference person (the CPS no longer uses the designation "head of household"), meaning that these workers' house-

Minimum Wage Coverage

The Fair Labor Standards Act (FLSA) establishes the minimum wage, along with overtime pay, recordkeeping provisions, and child labor standards. The FLSA was enacted in 1938 with a minimum wage of $0.25 an hour. Currently the minimum wage is $5.15 an hour, effective September 1, 1997. According to U.S. Department of Labor, 79.4 million wage and salary workers, 64.9 percent of all wage and salary workers, were covered by the minimum wage in 1996.

Enterprises that have an annual gross sales volume of $500,000 are covered by FLSA. In addition, enterprises that are engaged in interstate commerce or in production, handling, selling, or otherwise working on goods or materials that have been moved in or produced for interstate commerce are covered by FLSA. This includes employees who work in transportation or communications, or employees who regularly use the mails or telephone for interstate communications. Hospitals and related institutions, elementary or secondary schools, institutions of higher education, and Federal, State, and local government agencies are required to pay the minimum wage to employees.

Generally domestic workers are covered by FLSA. Day workers, housekeepers, chauffeurs, cooks, and full-time babysitters are covered by FLSA if they receive at least $1,000 in a calendar year from one employer or they work more than 8 hours a week for one or more employers.

Employers of tipped employees—those who regularly receive more than $30 a month in tips—are required to pay the minimum wage, however, the employer can claim a tip credit against the minimum wage obligation. The employer's direct wage obligation is not less than $2.13 per hour. If the employee's tips and the employer's wage do not reach the minimum wage, then the employer must make up the difference. A restaurant or fast food business is subject to the FLSA if it has gross sales of at least $500,000 from one or more establishments. In addition, any employee who is engaged in interstate commerce, which includes handling a credit card transaction, would be covered by the minimum wage. In 1996, the Wage and Hour Division of the Employment Standards Administration targeted the eating and drinking places industry along with several other industries for FLSA compliance because of having a history of above-average FLSA violations.

Industrial homeworkers are covered by the minimum wage even if they are paid by the piece or by the job.

A subminimum wage of $4.25 can be paid to employees under 20 years of age during their first 90 consecutive calendar days of employment with an employer. Employers are prohibited from fully or partially displacing current employees in order to hire youth at the subminimum wage. Certain categories of workers—full-time students, student learners, apprentices, and workers with disabilities—may be paid less than the minimum wage under special certificates granted by U.S. Department of Labor to employers.

Not covered under the minimum wage are workers who are executive, administrative, and professional employees, including teachers and academic administrative personnel in elementary and secondary schools; outside sales employees; and certain skilled computer professionals. Other exemptions include employees of certain seasonal amusement or recreational establishments, employees of certain small newspapers, switchboard operators of small telephone companies, seamen employed on foreign vessels, employees engaged in fishing operations, employees engaged in newspaper delivery, farm workers employed by anyone who used no more than 500 "man-days" of farm labor in any calendar quarter of the preceding calendar year, and casual babysitters and persons employed as companions to the elderly or infirm.

In States with minimum wage laws providing for a higher minimum wage than the FLSA minimum wage, the higher standard applies.

For more information on the minimum wage, see the web site of the U.S. Department of Labor's Employment Standards Administration: <www.dol.gov/dol/esa/>.

holds are being supported on low earnings. Increasing the minimum wage could make a difference in the standard of living of these households.

Workers with hourly earnings of $4.75-$6.14 in food manufacturing, however, had a very different profile from the rest of the low-wage workers in the food system. They were older—the average age was 36 years old, with only 6 percent under 20 years old in 1997. Most were male (65 percent) and they were disproportionately rural—44 percent live in nonmetro areas. Two-thirds were the reference person or spouse, while only 20 percent were living with a parent. The great majority—86 percent—were working full-time schedules. Forty percent lived in households with incomes less than $15,000. Again, an increase in the minimum wage could benefit these individuals who are working yet live below the poverty level.

One possible result of a minimum wage increase is that employers would lay off employees, reduce employees' hours, or reduce hiring in response to higher labor costs. The negative employment effect is estimated to be small as long as the minimum wage is relatively low. (See Hamermesh, Kennan, and Brown for recent literature reviews of research.) Were the minimum wage to be increased modestly during an economic expansion and with tight labor markets such as the economy has seen in the last 3 years, the negative employment effects would likely be negligible.

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Minimum Wage Increases Have Little Effect on Prices of Food Away From Home

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Since the away-from-home food industry employs many workers at or near the minimum wage, policymakers question whether raising the minimum wage would significantly increase food prices at eating and drinking places. This article examines the possible effects that a higher minimum wage might have on food prices and suggests that any such effect would likely be minimal.

When President Clinton signed H.R. 3448, the "Small Business Job Protection Act of 1996," into law, he stated that "this legislation provides a badly needed pay raise for millions of Americans and their families who struggle to make ends meet while working at the minimum wage." The Act boosted the minimum wage in two steps, a 50-cent increase from $4.25 to $4.75 an hour that took effect October 1, 1996, followed by an additional 40-cent increase to $5.15 an hour on September 1, 1997. On February 12, 1998, President Clinton again proposed raising the minimum wage, this time by $1 in two 50-cent increments: 50 cents in January, 1999, and another 50 cents a year later. The Senate rejected a bill on September 22, 1998, that would have set the national wage floor at $6.15 by the year 2000. To examine the effects of a minimum-wage increase on food prices, we briefly review the changing patterns of employment and the changing cost structures of the food industry. Four key factors determine how a minimum-wage increase might affect the price of food away from home:

- The percentage increase in the minimum wage itself,
- The distribution of workers in the minimum wage bracket,
- The share of wages and salaries in the total cost of production,
- The share of wage and salary in total compensation (when the minimum wage is raised, it does not necessarily mean that other fringe benefits will increase as well).

Based on the Bureau of Labor Statistics' (BLS) occupational employment data, which classifies the work force into seven occupational divisions, eating and drinking places (SIC 58) have a large share of workers (83 percent) in the service occupations (table 1). The industry's

Table 1
Occupational Division of Employment in Eating and Drinking Places, 1996

Occupational categories	Employment	Distribution	Mean wage
	Workers	*Percent*	*Dollars*
Managerial & administrative	462,120	6.13	14.3
Professional	37,980	.5	11.8
Sales & related occupations	499,730	6.63	6
Clerical & administrative supports	128,220	1.7	10.1
Service occupations	6,225,010	82.62	6.1
Agricultural forestry, fishing, and other related	620	.001	8.1
Production, construction, and operations	181,070	2.4	6.4
Total	7,534,750	100	6.7

Source: BLS, Office of Employment and Unemployment Statistics, 1996.

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mean average wage rate was $6.70 per hour in 1996. Most jobs are either in sales and related occupations (averaging $6.00 per hour) or service occupations (averaging $6.10). While the data do not include the percentage employed under the minimum-wage level, food-related workers are in the service occupations, which confirms the conventional wisdom that the lowest paid occupations are in the foodservice industry.

We studied the changes in employment for the eating and drinking places, food and kindred sectors, and U.S. totals from 1972 to 1992 (table 2). Even though the structure of food and kindred and U.S. totals are very different from the eating and drinking places, we analyze them for comparative purposes despite the expected differences. These fluctuations in employment also reflect the trends of industry's output as the result of changing consumer demand. We selected these years to match with our Input-Output (I/O) analysis (see "How Estimates Were Made"). Employment in eating and drinking places steadily increased as more Americans have been dining out and as two individuals within the household, rather than one, work. Schluter, Lee, and LeBlanc report that "consumer spending for food consumed away from home has grown faster than consumer spending for food consumed at home, nearly twice as fast from 1980 to 1996."

Eating and drinking places had approximately 2.86 million jobs in 1972, which climbed to 7.5 million in 1996. Compared with the U.S. average, which shows 22.3-percent and 20.7-percent increases during the decade of 1972-82 and 1982-92 respectively, employment in eating and drinking places grew 68.8 percent and 36.9 percent, one of the fastest growing sectors in the economy during this period. The food and kindred industry showed slight increases from 1982 to 1992 (1.82 percent) after declining 6.16 percent during the years 1972-82.

The importance of labor costs to eating and drinking establishments can be seen by comparing its costs of production with other industries (table 3). As expected, the compensations to wage earners were far more in the eating and drinking industry than in the food and kindred industry (34 cents vs. 13.5 cents). The table also shows that the food and kindred industry uses the most intermediate inputs (inputs other than primary inputs such as labor and capital), 69.6 cents of a dollar price received followed by

Data Sources

Bureau of Labor Statistics classified seven occupational divisions:

- managerial and administrative occupations (OES Series 10000);
- professional, paraprofessional, and technical occupations (OES Series 20,000-30,000);
- sales, related occupations (OES Series 40000);
- clerical and administrative support of occupations (OES Series 50000);
- service occupations (OES Series 60000);
- agricultural, forestry, fishing, and related occupations (OES Series 70000); and
- production, construction, operations, maintenance, and material handling (OES 80000).

For this study, we used the BLS's earnings file, which is derived from the Current Population Earnings File Extract. This microdata file "consists of all records from the monthly quarter-samples of Current Population Survey households that were subject to having questions on hours worked and earnings asked during the year." The Annual Earnings File permits us to create a distribution of wage groups by the three-digit industry classification codes. This in turn allows us to examine the breakdown of how many people are making the minimum wage in each of the 991 industries covered in the AEF. We can then condense this 991-sector distribution into our 80-sector I/O model.

We included both full- and part-time workers, but excluded those who were self-employed, those employed without pay, and those who had never worked. This yielded a total work force from the AEF of approximately 112 million workers, which is consistent with BLS reports for 1992. We then took the usual earnings per week reported in the AEF and divided it by the usual hours per week worked to arrive at usual earnings per hour.

To more clearly deduce the effect of a minimum-wage increase we created five wage categories. The first wage classification consisted of those making less than or equal to the minimum wage for the year in question. For the next category, we added 50 cents to make the range $4.26 to $4.75. The third division went from $4.76 to $5.25, the fourth from $5.26 to $5.75, and the final was $5.76 and above. The distribution for 1997 is similar to that for 1992, except that the lower and upper levels of each range are indexed to 1992 dollars. For instance, the $5.15 minimum wage in 1997 is $4.50 in 1992 dollars. We condensed these wage distributions developed for the three-digit industry classifications into our 80-sector I/O model (table 4).

eating and drinking places (52 cents) and the United States as a whole (43.3 cents).

To examine the likely effect of an increased minimum wage, we used an Input-Output model to evaluate three different scenarios. In scenario 1, we increased the 1992 minimum wage by 12 percent (from $4.25 to $4.75). In scenario 2, we allowed 3-percent and 1-percent spillover effects into the next two wage categories in addition to scenario 1's minimum wage increase. Spillover effects occur because, when the wages of some workers increases as the minimum wage increases, some employers may choose to increase the wages of workers who were already earning slightly more than the minimum wage. However, because this is an individual firm's decision, there is no empirical evidence of specific rates of wage increases due to spillover effects. In scenario 3, we increased the 1997 minimum wage by 9.7 percent (from $5.15 to $5.65), and the same spillover conditions were imposed as in the case of scenario 2.

The scenarios can be summarized as follows:

Scenario 1: a 50-cent increase (12 percent) over the 1992 minimum of $4.25.

Scenario 2: scenario 1, plus additional 3- and 1-percent spillover effects into the next two wage categories.

Scenario 3: a 50-cent increase (9.74 percent) over the 1997 minimum of $5.15 and 3- and 1-percent spillover effects on the next two wage categories.

The results show that the minimum wage increases we analyzed only cause small increases in the costs of food purchased at eating and drinking places (table 4). The first column of table 4 shows the percentage increase in sector prices in the eating and drinking places when the minimum wage increased by 12 percent (50 cents) as in scenario 1. With full cost pass-through, the minimum wage increases prices at eating and drinking places by 0.89 percent. In 1992, the wage share of compensation was relatively large, 34 cents per dollar price (table 3), and the distribution of workers at or below the minimum wage range (table 5, figs. 1 and 2) was also relatively large, 23.4 percent.

Accordingly, the effects of a minimum wage increase in eating and drinking places is larger than other sectors in the economy. When 3- and 1-percent spillover effects are taken into account (scenario 2), the percentage change increases as the number of workers affected by the minimum wage increases. Prices in

Table 2
Change in Wage and Salary Employment, 1972-96

Sector	1972-82	1982-92	1972-92	1992-96
	Percent			
Eating and drinking	68.85	36.86	131.08	13.47
Food and kindred	-6.16	1.82	-4.45	1.82
U.S. total	22.26	20.74	47.62	9.71

Notes: Eating and drinking is service industry, while food and kindred is manufacturing. The U.S. total and food and kindred are used for purpose of comparison.
Source: BLS, with percentage changes calculated by ERS.

Table 3
Structure of Cost of Production, 1992

Sector	Share of intermediate inputs	Share of labor cost	Share of residual income	Total
		Percent		
Eating and drinking	0.5203	0.3393	0.1404	100
Food and kindred	.6963	.1351	.1686	100
U.S. total	.4334	.33	.2364	100

Note: Source: Aggregated from *The 1992 Benchmark Input-Output Accounts for the U.S. Economy,* BEA/USDC, 1998.

Table 4
Change in Prices Due to Minimum Wage Increases

Sector	Scenario 1	Scenario 2	Scenario 3
		Percent	
Eating and drinking	0.893	1.084	1.479
Food and kindred	.36	.405	.453

Notes: Scenario 1: A 50-cent increase (12 percent) over the 1992 minimum wage ($4.25). Scenario 2: Scenario 1 plus 3-percent and 1-percent spillover effects on the second and third wage categories. Scenario 3: Scenario 2 but wage increases over 1997 minimum wages ($5.15 ($4.50) to $5.64 ($4.94) and total (100 percent) compensations).

Table 5
Minimum Wage Distributions, 1992 and 1997 (in 1992 dollars)

1992	≤$4.25	$4.26-$4.75	$4.76-$5.25	$5.26-$5.75	$5.76 and up
Eating and drinking	0.2341	0.1734	0.1446	0.0637	0.3842
Food and kindred	.1058	.0248	.0519	.0274	.7901
1997	**≤$4.50**	**$4.50-$4.94**	**$4.95-$5.38**	**$5.39-$5.81**	**$5.82 and up**
Eating and drinking	0.3508	0.0751	0.1376	0.0556	0.3809
Food and kindred	.1210	.0147	.0516	.0250	.7877

Note: Data derived from the 1992 Current Population Survey earnings file.

eating and drinking places show a 1.08-percent increase. As scenario 3 portrays, the higher the minimum requirement, the larger the effect of an increase in the minimum wage on food prices.

These price increases of course assume that eating and drinking places continue to use the same level of employment in their production. As expected, all sectors show higher output prices necessary (the needed food price increase) to maintain their original residual incomes. A 50-cent increase in the 1992 minimum wage ($4.25) requires a 0.9-percent increase in food prices in eating and drinking places to maintain the original residual income in the sector. Allowing for wage spillover (increase) in adjoining wage categories raises the needed food price increase by 1.1 percent. A 50-cent increase in the 1997 minimum wage ($5.15) yields a 45-cent real wage increase in 1992 dollars (a 50-cent increase from $5.15 to $5.65 in 1992 dollars results in a move from $4.50 to $4.94). This raises the needed food price increase by 1.4 percent. Thus, a 50-cent increase in the minimum wage would have a minimal effect on food prices even though the effect is directly proportional to the minimum wage increases. As expected, result of higher input costs due to minimum wage hikes. Commodity output prices are equal to unit factor costs (direct and indirect) and output prices and move hand in hand with factor costs.

Furthermore, if the workers between the current minimum wage and a proposed higher wage make up 10 percent of an industry's employment and wages are 80 percent of compensation, then increasing their average wage by 15 percent would increase industry total wage cost by 1.2 percent (=0.15*0.8*0.10). We then introduce this 1.2-percent increase in compensation into our I/O model to estimate both direct and indirect cost increases due to the minimum wage hikes.

The latest published U.S. I/O tables are for 1992 (U.S. Department of Commerce, Bureau of Economic Analysis). There are 525 sectors in the U.S. I/O economy. We aggregated them to 80 sectors for the analysis.

How Estimates Were Made

The Input-Output (I/O) model is an empirical representation of a special production economy. It is "special" because fixed proportions exist in all production processes. This fixed-proportion production function allows no substitution among the inputs. That is, it is assumed that in any given period of time, with existing production capacities, there is always one combination of resources that firms consider optimal. Therefore, the unit cost of production consists of the cost of fixed intermediate inputs and direct primary factor costs. Thus, the unit value of an output consists of the unit values of its commodity inputs, each weighted by the contribution to the output of the commodity plus the value of the labor and capital inputs per dollar of output.

If eating and drinking places perform as perfectly competitive markets, they set output prices equal to average costs and marginal costs; however, they may be able to vary output prices as a

the largest effect would be in eating and drinking places, which have a larger share of workers in the minimum wage category than other sectors of the economy and relatively large labor costs (34 cents of each dollar taken in). Even in the eating and drinking sector, however, a 50-cent minimum wage increase would only raise prices about 1 percent.

Figure 1
Wage Distribution by Industry, 1992

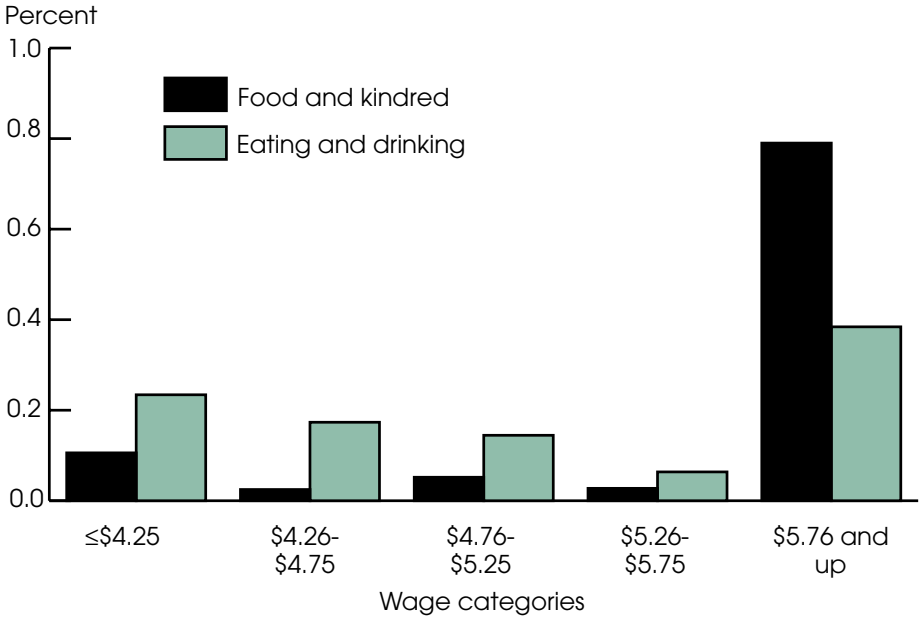
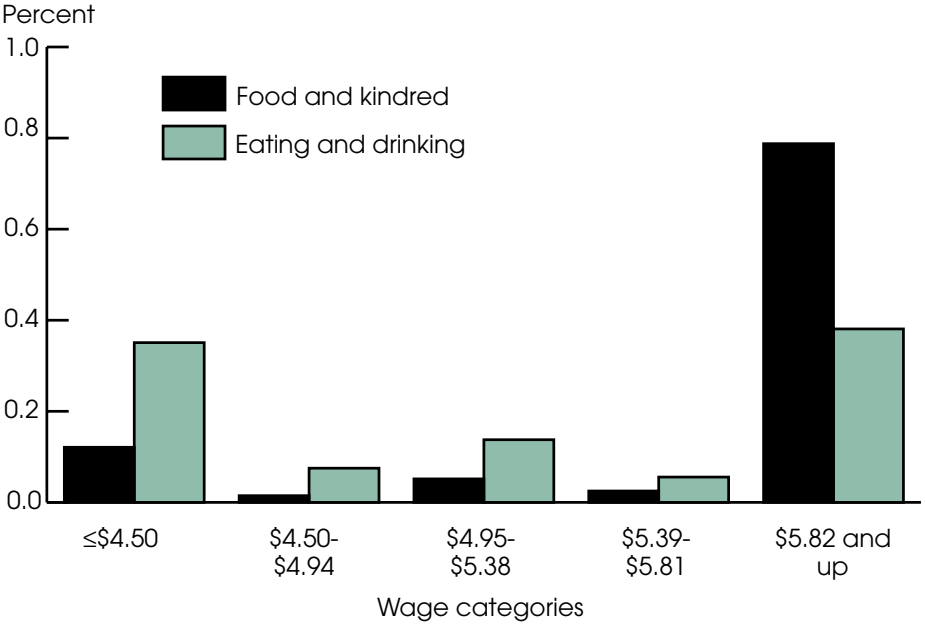


Figure 2
Wage Distribution by Industry, 1997 (in 1992 dollars)



Note: Data derived from the 1992 Current Population Survey earnings file.

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Grocery Industry Courts Time-Pressed Consumers with Home Meal Replacements

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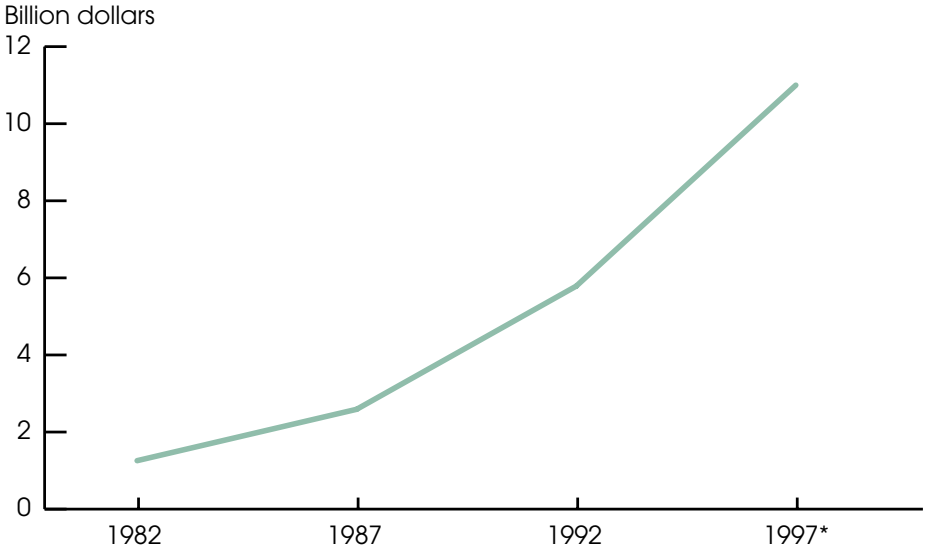
Rising incomes, a growing tendency for both spouses to participate in the labor force, and tightening constraints on family time have increased the demand for meals requiring little or no preparation at home. Long-term changes in the allocation of the food budget reflect the fact that consumers are spending more on prepared meals and relatively less on meal ingredients for at-home preparation. In 1972, consumers spent 56.6 percent of their total food budget at grocery stores, 14.3 percent at table service restaurants, and 7.3 percent at fast food outlets, while the 1997 expenditure shares at grocery stores, restaurants, and fast food outlets were 43.3 percent, 16.0 percent, and 15.3 percent, respectively (USDA/ERS).

Supermarkets are attempting to regain food dollars lost to the foodservice industry by offering their own menu of fully prepared meals intended for home consumption—widely referred to as Home Meal Replacements (HMR's). This relatively new but rapidly emerging segment of the grocery industry is blurring the distinction between food at home and food away from home. In time, HMR's could seriously compete with traditional foodservice providers (such as restaurants and fast food outlets) for consumer's away-from-home food dollars.

Prepared Meals at Grocery Stores Are Selling Fast

The Census of Retail Trade reports that in 1992, sales of fully prepared meals and snacks at grocery stores (which includes supermarkets, convenience stores, and delicatessens) surpassed $5.7 billion—more than double the $2.6 billion spent on this category in 1987. Over 60 percent of the grocery store HMR sales occurred at supermarkets. Based on the historic growth rate and the current Census estimate of total grocery store sales, 1997 sales of prepared meals at all types of grocery stores are estimated to be about $11 billion (fig. 1). But the consensus among most analysts is that the HMR market grew significantly more rapidly in recent years than it did prior to 1992, so this is a conservative estimate. Other estimates of 1997 prepared meal expenditures at supermarkets (not includ-

Figure 1
Sales of Prepared Meals at Grocery Stores



Note: *Projected.

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ing convenience stores) range from about $10 to $14 billion (Kataoka; Paul).

In addition to HMR's, the other major service-oriented departments in most grocery stores are the bakery and the service deli. In 1992, fewer than 24 percent of all supermarkets offered HMR's, while over 39 percent sold bakery items prepared onsite and 57 percent had a service deli. U.S. sales of HMR's though supermarkets accounted for just over 1 percent of total supermarket sales. However, for the stores that offered HMR's, this department on average contributed a greater proportion of store sales than did either the bakery section or the service deli (table 1). Convenience stores and delicatessens obtain a larger proportion of their total revenue from HMR's than do supermarkets, but U.S. sales of HMR's through these outlets is considerably less than through supermarkets.

According to the Census of Retail Trade, in 1992, grocery stores accounted for about 3.2 percent of total U.S. expenditures on prepared meals, up from 1.9 percent in 1987 and 1.4 percent in 1982. Restaurants and fast food outlets account for the majority of prepared meal sales. Since 1992, the rate of expenditure growth on HMR's has likely exceeded the growth in expenditures at either restaurants or fast food outlets, so the share of the prepared food market held by grocery stores has almost certainly increased.

Challenges Remain for Retailers

Most grocery retailers are still trying to identify the most profitable way to participate in the market for prepared foods. One challenge is appropriately marketing the product to consumers. According to a recent poll by the Consumer Research Network, product quality

Table 1
U.S. Sales of Prepared Meals, Bakery, and Deli Items by Different Types of Retail Firms

Retail segment/ merchandise line	Outlets offering each merchandise line	Sales of specified merchandise line	Total sales for firms handling the merchandise line	Total sales for all firms in retail segment
	Number	*Dollars*	*Percent*	
Supermarkets:	73,357	314,000		
Prepared meals[1]	17,284	3,584	4.3	1.1
Bakery items[2]	28,118	4,608	2.4	1.5
Deli items[3]	41,992	10,167	4.1	3.2
Convenience stores:	30,748	17,310		
Prepared meals	18,678	1,200	10.3	6.9
Bakery items	2,911	65	3.8	.4
Deli items	14,986	510	5.3	3.0
Convenience food stores/ gas stations:[4]	23,035	9,338		
Prepared meals	14,759	817	6.1	4.2
Bakery items	1,729	41	2.4	.2
Deli items	7,897	221	3.1	1.1
Delicatessens:	6,123	1,176		
Prepared meals	2,648	184	23.0	10.4
Bakery items	982	41	12.7	2.3
Deli items	6,123	1,011	57.0	57.0
General merchandise stores:[5]	34,606	245,330		
Prepared meals	8,811	1,619	1.6	.7

Notes: [1]Meals, snacks, sandwiches, and nonalcoholic beverages generally sold for take-out or immediate consumption. [2]Items baked onsite only. [3]Service delicatessen items only; prepared sandwiches are included under prepared meals. [4]Only establishments where gasoline sales do not exceed 49 percent of total sales. [5]Includes department stores, variety stores, general merchandise stores, catalog showrooms, warehouse clubs, and general stores. Source: 1992 Census of Retail Trade; Merchandise Line Sales.

and freshness, as well as the availability of nutrition information for prepared foods, remain key concerns among consumers (Vosburgh). Larson discusses in detail many of the marketing strategies used by grocery retailers that offer prepared meals and notes the need for improvement in the areas of product shrink, employee training, and promotion.

Another challenge is determining the most efficient method of meal preparation. According to the Food Marketing Institute, the majority of supermarkets offering home meal replacements prepare at least some of the menu items onsite (60 percent), typically using products sourced from other departments in the store. Twenty-five percent of retailers source at least some of their menu items from national brand manufacturers of prepared meals, while 16 percent purchase from private label manufacturers, and 9 percent establish central kitchens to supply the chain. Some retailers employ several of the above strategies. Also, about 11 percent of retailers have national or local fast food outlets located onsite.

A survey by John Park suggests that retailers are trending away from preparing meals in-store in favor of either central kitchens or independent food manufacturers. Retailers are concerned about food-safety and quality control, which are easier to manage when all products come from a location that specializes in preparing these food items. In 1998, supermarket food service accounted for 7.5 percent of total sales in the foodservice distributor industry—up from 6.3 percent in 1997 (*Food Institute Report*)—reflecting the growing tendency for supermarkets to outsource at least a part of their prepared meal operations.

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Changing Food Consumption Patterns: Their Effect on the U.S. Food System, 1972-92

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Americans are changing the way they eat and the foods they buy. New lifestyles, shifting demographics, and growing concerns about nutrition and health contribute to these changes. In response to American consumers, the food system may be shifting from volume production for general consumer markets to marketing and production for specialized markets.

These changes have not influenced all parts of the food system equally, according to ERS researchers who examined how changes in food demand affect the food system's output in different sectors for 1972-92. Within the food system, real output grew during 1972-92 for the processed food sectors and eating and drinking places (table 1). The poultry and egg processing sector showed the largest percentage growth, 269 percent (from $6,472 million in 1972 to $23,865 million in 1992), followed by confectionery, bakery, and macaroni, 85 percent (from $23,252 million to $43,118 million). Output for the meat packing sector grew the least, 11 percent (from $56,340 million to $62,440 million) over the period and refined sugar sector output declined 26 percent (from $8,010 million in 1972 to $5,909 million in 1992). Overall, the total real output of processed food sectors rose 40 percent (from $243 billion in 1972 to $342 billion). The nonfood processing sectors in the food system grew strongly. Output in transportation rose 82 percent from $182 billion in 1972 to $332 billion in 1992. Output for wholesale and retail trade grew 86 percent, from $496 billion to $926 billion. Output for the eating and drinking sector grew 83 percent, from $114 billion to $210 billion.

Consumers Demand More Processing

Production to meet the growth in domestic food demand grew more than the total growth for outputs in the processed food sectors (table 1). Outputs of beverages and flavorings, and miscellaneous food due to expanding domestic food demand grew more than the output for the total system from 1972 to 1992. The fact that domestic food demand-related output increased more than the total output change suggests that increased imports, such as wine, coffee, etc., or substituting other ingredients for flavorings helped meet domestic food demand.

For refined sugar, related output for domestic food demand increased while total output decreased. The positive effect of direct growth in consumable products in the sugar sector was offset by a decline in demand for refined sugar as ingredients in other products. Much of this decrease resulted from the

About the Data

ERS analysts used an input-output (I/O) demand-based procedure to estimate the supporting output needed from industrial sectors to produce the food consumed by domestic consumers. They divided the U.S. food system into 13 I/O sectors (tables 1 and 2). The domestic food demand components were the four U.S. National Income and Product accounts (NIPA) food consumption categories: (1) food for off-premises consumption, (2) purchased meals and beverages, (3) food furnished for employees, and (4) food produced and consumed on farms.

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increased use of the competing sweetener, high fructose corn syrup (HFCS). While increased food demand was important to food processing, for transportation, and for wholesale and retail trade, it accounted for only a small proportion of the total output increases from 1972 to 1992. Not surprisingly, increased food demand accounted for most of the increased output for eating and drinking places.

We can understand the effects of food demand better by looking at how different types of demand affect different sectors in the food system. While the off-premises food consumption category is the largest and thus the source of most of the output changes, expenditures for purchased meals and beverages grew faster and the mix of food products consumed changed within food consumption categories.

Changes in consumer demand since 1972 have come both from an increase in the number of consumers and from consumers' changing needs and tastes. Per capita disposable personal income grew 37.5 percent from $10,414 in 1972 to $14,341 in 1992 (in 1987 dollars). Besides consumers being more numerous and more affluent, Americans lead faster-paced lifestyles and they no longer have a lot of time for preparing meals. Accordingly, the demand for consumer-ready processed food grew and likely will grow faster than the demand for traditional food cooked in the home. The more highly processed food sectors such as miscellaneous food processing; canning, freezing, and dehydrating; and confectionery, bakery, and macaroni grew more than those sectors producing less highly processed food, meat processing, dairy processing, etc., and faster than the processed food average (41 percent) (table 1).

Furthermore, consumers dined out more both as household incomes grew and as the number of dual-income households increased; eating and drinking places output grew 83 percent. From 1972 to 1992, Americans spent more on purchased meals and beverages, from $120 billion to $188 billion (in 1987 dollars, up 57 percent). As a result, demand for processed food also increased, particularly for red meat, dairy, and sugar (table 2, column 2). In the past, consumers did more meal preparation themselves and the food products they purchased at grocery stores were less processed. Now, Americans count on the food industry to play a larger role in meal preparation. The proportion of women ages 25 to 50 who are in the work force has climbed steadily during the past two decades to

Table 1
Output Changes Due to Domestic Food Demand Expansion

Sector	Food output 1972	Food output 1992	Output change	Percent change	Output change due to food demand Output	Output change due to food demand Percent
	Million 1987 dollars			*Percent*	*Million 1987 dollars*	*Percent*
Red meat processing	56,340	62,440	6,100	10.8	5,611	92.0
Poultry and egg processing	6,472	23,865	17,393	268.7	14,187	81.6
Dairy plants	34,848	42,120	7,272	20.9	5,002	68.8
Canning, freezing, and dehydrated	27,152	40,449	13,297	49.0	10,818	81.4
Grain milling, excluding prepared feeds	14,391	25,134	10,743	74.7	9,756	90.8
Refined sugar	8,010	5,909	-2,101	-26.2	288	-13.7
Fats and oil mills	11,920	16,886	4,966	41.7	3,215	64.7
Confectionery, bakery, and macaroni	23,252	43,118	19,866	85.4	16,582	83.5
Beverage and flavorings	44,330	57,688	13,358	30.1	26,501	198.4
Miscellaneous food processing	16,656	24,662	8,006	48.1	8,729	109.0
Total processed food	243,371	342,271	98,900	40.6	100,689	101.8
Transportation	182,336	331,767	149,431	82.0	-1,592	-1.1
Wholesale and retail trade	496,441	925,738	429,297	86.5	62,371	14.5
Eating and drinking	114,369	209,522	95,153	83.2	94,162	99.0
Total food system	1,036,517	1,809,298	772,781	74.6	255,630	33.1

about 75 percent, sharply boosting the number of single-individual and dual-income households. Both types of households probably spend less time preparing meals than do traditional single-earner families. As a result, today's consumers spend less time in the kitchen and are increasingly shopping for conveniently prepared food products that fit faster-paced lifestyles. Besides these demographic and cultural trends, many U.S. domestic markets for food and fiber products are mature and future domestic food demand may grow mainly with U.S. population growth.

While production for domestic food demands dominated the food processing sectors of the food system from 1972 to 1992, growth in food demand has been less important to the wholesale and retail trade and transportation sectors. Changes in food system uses of transportation services since 1972 has meant that the growth in food demand has actually lowered the need for transportation output from 1972 to 1992. In 1972, a dollar of consumer expenditures for food included a larger share of transportation services than a dollar spent in 1992. Increased domestic food demand accounted for 14 percent of wholesale and retail trade output and for nearly all of the growth in eating and drinking place output from 1972 to 1992.

These demand changes have significantly influenced the food system. For 8 of the 13 food system sectors, food purchased for off-premises consumption was the most influential of the 4 components of domestic food demand expansion used here (table 2). Purchased meals and beverages significantly influenced the other five sectors.

In a general view of the system, eating and drinking places could be seen as a type of processing sector. From this perspective, purchased meals and beverages stimulate demand for eating and drinking places and the less highly processed food—meat, milk, and sugar. In fact, the growth in the demand for purchased meals and beverages demand accounted for the largest share of output growth for meat products, dairy plants, and refined sugar, and also for eating and drinking places (table 2).

As Americans become more discriminating buyers, they have shifted from traditional to more consumer-ready foods. Americans have also become increasingly concerned about the health and nutritional content of food. The food industry has tried to adapt to these changing demands by shortening the path from farm to consumer with a more tightly integrated market structure and industrialization. Firms in the food system have changed from a "here is what we produce" to "here is what consumers want" perspective.

Table 2
Sources of Domestic Food Demand Expansion, 1972-92

Sector	Change in: Off-premise consumption	Purchased meals and beverages	Food furnished to employees	Farm foods	Total
	Million 1987 dollars				
Red meat processing	1,022.7	4,858.7	285.1	-555.9	5,611.0
Poultry and egg processing	12,423.2	1,500.3	276.6	-11.5	14,187.0
Dairy plants	179.5	4,536.4	286.4	-.6	5,002.0
Canning, freezing, and dehydrated	7,604.3	2,930.7	283.0	-.3	10,818.0
Grain milling, excluding prepared feeds	8,785.2	819.4	155.8	-4.3	9,756.0
Refined sugar	-227.8	492.1	25.8	-1.8	288.0
Fats and oil mills	2,306.5	811.3	124.4	-27.5	3,215.0
Confectionery, bakery, and macaroni	12,473.8	3,801.4	307.0	-.2	16,582.0
Beverage and flavorings	21,230.8	5,212.8	57.9	-.9	26,501.0
Miscellaneous food processing	7,518.6	1,190.6	17.0	-1.5	8,729.0
Total processed food	73,316.8	26,153.7	1,824.0	-605.7	100,689.0
Transportation	-5,821.2	4,173.6	119.2	-63.2	-1,591.6
Wholesale and retail trade	53,316.8	8,687.5	464.9	-98.1	62,371.1
Eating and drinking	558.1	93,596.2	10.8	-3.3	94,161.8
Total food system	121,370.5	132,611.0	2,418.9	-770.3	255,630.3

Food-Assistance Expenditures Fall for Second Year

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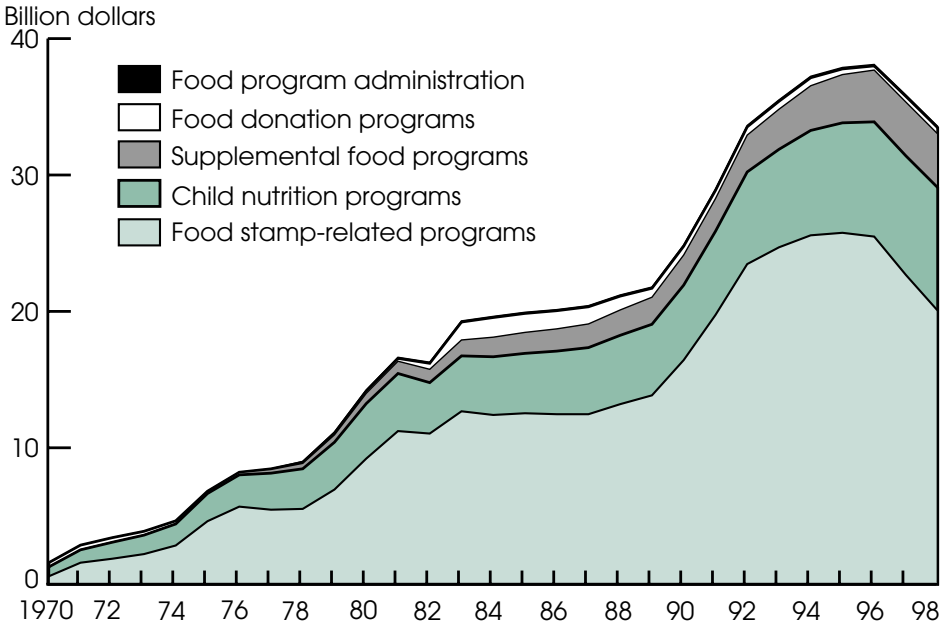
A strong economy combined with stricter food stamp eligibility rules in fiscal year 1998 led to fewer people receiving Federal food assistance and a resulting decrease in food-assistance program costs. Federal Government expenditures on these programs totaled $33.6 billion in fiscal year 1998, a fall of 6 percent from the previous year, making this the second consecutive year in which total expenditures declined. Prior to fiscal year 1997, annual food-assistance program expenditures had increased for 14 consecutive years (fig. 1), which are measured from October through September rather than by calendar year. (The data cited in this article are based in part on preliminary data submitted by various reporting agencies as of December 1998 and are subject to change as reporting agencies finalize data.)

The U.S. Department of Agriculture's (USDA) Food and Nutrition Service (FNS) administers the wide assortment of food-assistance programs that differ by expenditure level, the population groups they serve, and the types of benefits provided (see box on domestic food-assistance programs). Most of the decrease in total food-assistance expenditures in fiscal year 1998 was attributed to the Food Stamp Program; other programs expanded. Individual programs, when grouped into four broad categories—Food Stamp-Related, Child Nutrition, Supplemental Food, and Food Donation—reveal general patterns and trends.

Food Stamp-Related Programs Costs Declined Substantially

The Food Stamp Program is the cornerstone of USDA's network of food-assistance programs. In lieu of the Food Stamp Program, Puerto Rico, the Commonwealth of the Northern Marianas Islands, and American Samoa receive grant funds that allow them to operate nutrition-assistance programs

Figure 1
Food Assistance Expenditures Continued To Decrease in Fiscal 1998



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designed specifically for their low-income residents. After more than doubling from fiscal year 1987 to fiscal year 1995, combined expenditures for these food stamp and nutrition-assistance programs have decreased in each of the last 3 fiscal years.

The Food Stamp Program

The Food Stamp Program is the largest of the food-assistance programs, accounting for 56 percent of all food-assistance expenditures in fiscal year 1998. Expenditures for the program totaled $18.8 billion, a decrease of 12 percent from fiscal year 1997 (table 1). This decrease was largely the result of a decline in program participation. An average of 19.8 million people per month received food stamps in fiscal year 1998—almost 3.1 million people, or 13 percent, fewer than in the previous fiscal year.

This decline in participation is attributed, in part, to the continuing strong economy. Since reaching its historic peak in fiscal year 1994, food stamp participation has declined in each of the last 4 years (fig. 2). Changes in the Food Stamp Program brought about by recent welfare reform legislation have also contributed to the decline in participation. Stricter work and citizenship rules for eligibility resulting from the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 became effective in fiscal year 1997 (see "Welfare Reform Affects USDA's Food-Assistance Programs" in the January-April 1998 issue of *FoodReview* for more information).

Benefits paid to recipients accounted for 90 percent of the total cost of the Food Stamp Program to the Federal Government (the remainder is attributed to adminis-

Table 1
Food-Assistance Program Outlays Decrease in Fiscal 1998

Food-assistance program	1998 program costs	1997 program costs	Change in costs, 1997-98
	Million dollars		*Percent*
Food stamp-related programs[1]	20,054.7	22,669.6	-11.5
Food Stamp Program	18,840.3	21,485.2	-12.3
Nutrition-assistance programs	1,214.4	1,184.4	2.5
Child nutrition programs[2]	9,023.2	8,728.1	3.4
National School Lunch	5,806.9	5,553.8	4.6
School Breakfast	1,264.1	1,214.2	4.1
Child and Adult Care Food[1]	1,553.4	1,570.9	-1.1
Summer Food Service[1]	264.0	243.7	8.3
Special Milk	16.7	17.4	-4.0
Supplemental food programs	3,934.9	3,943.6	-.2
WIC[1, 3, 4]	3,841.7	3,844.4	-.1
CSFP[1, 5]	93.3	99.2	-5.9
Food donation programs	452.9	415.8	8.9
Food Distribution on Indian Reservations[1]	70.5	71.3	-1.1
Nutrition Program for the Elderly	140.7	145.2	-3.1
Disaster Feeding	.3	1.1	-72.7
TEFAP[6]	232.2	191.9	21.0
Charitable Institutions and Summer Camps	9.2	6.3	46.0
All programs[7]	33,567.5	35,864.0	-6.4

Notes: [1]Includes administrative costs. [2]Total includes the Federal share of State administrative costs, which were $118.2 million in fiscal 1998 and $128.1 million in fiscal 1997. [3]Refers to the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). [4]Expenditure data for fiscal 1998 do not include the costs associated with the WIC Farmers' Market Nutrition program. [5]Refers to the Commodity Supplemental Food Program. [6]Refers to The Emergency Food Assistance Program. [7]Total includes Federal administration expenses of $101.7 million in fiscal 1998 and $106.9 million in fiscal 1997. Source: USDA, Food and Nutrition Service, Keydata September 1998 (revised). Data subject to change with later reporting.

trative costs and other costs such as printing and processing stamps, studies and surveys, and computer support systems). The average monthly food stamp benefit was $71.09 per person and about $171.60 per household in fiscal year 1998.

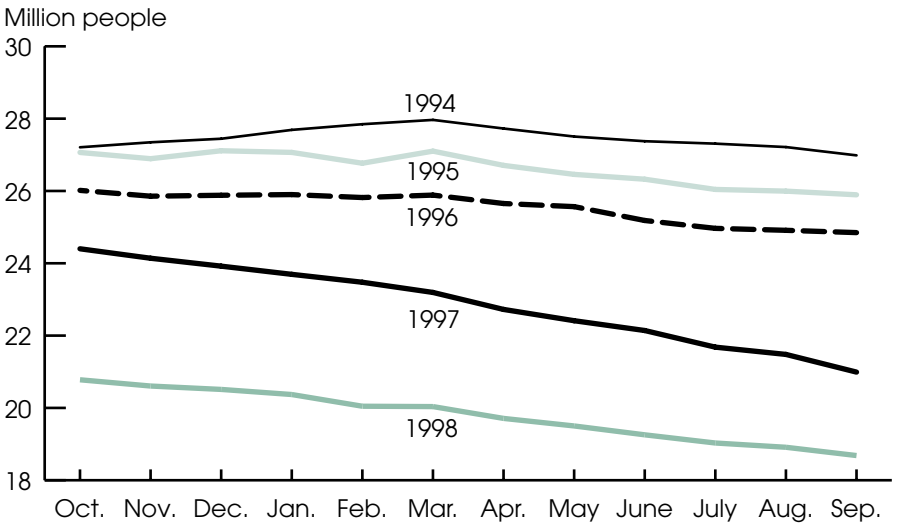
Nutrition-Assistance Block-Grant Programs

Nutrition assistance in the form of block grants is provided to Puerto Rico, America Samoa, and the Commonwealth of the Northern Marianas Islands, where Food Stamp Program standards and criteria are not suitable. Unlike funding for the regular Food Stamp Program, which automatically expands to meet increased demand when the economy is in recession and contracts when the economy expands, funding for these nutrition-assistance grant programs is limited to an annual amount specified by law. USDA's funding for the Puerto Rico program increased by 3 percent to $1.2 billion in fiscal 1998. Funding for American Samoa totaled $5.3 million in fiscal year 1998 while funding for the Commonwealth of the Northern Marianas Islands totaled $5.1 million, both of which were the same as in fiscal year 1997 and fiscal year 1996.

Outlays for Child Nutrition Programs Continued To Grow

The Child Nutrition Programs—the National School Lunch, School Breakfast, Child and Adult Care Food, Summer Food Service, and Special Milk Programs—assist State and local governments in providing nutritious meals to children in public and nonprofit schools, child care institutions, summer recreation programs, and certain adult day care centers. USDA provides cash reimbursements for all meals served under these programs; the largest subsidies are provided to children from low-income families. USDA also provides foods to these programs. Combined expenditures for these programs increased by 3 percent to $9.0 billion in fiscal year 1998, a continuation of a steady annual increase since the mid-1980's.

Figure 2
Food Stamp Participation Continued To Decline in Fiscal 1998



The National School Lunch Program

The National School Lunch Program is the second-largest food-assistance program, accounting for 17 percent of all USDA food-assistance expenditures. Participation in the program was widespread; about 26.6 million children in almost 96,600 schools and residential child-care institutions participated in the National School Lunch Program each school day in fiscal year 1998. The program was available in about 99 percent of all public schools and in many private schools. Fifty-eight percent of the children in the schools and institutions offering school lunch participated in the program daily.

A total of 4.4 billion lunches were served under the program in fiscal year 1998 (about the same as during the previous fiscal year), of which almost 50 percent were free and another 8 percent were offered at reduced prices (the remaining 42 percent were full price). As a result of increased meal costs, Federal outlays for the program increased almost 5 percent to $5.8 billion in fiscal 1998.

School Breakfast Program

Expenditures for the School Breakfast Program totaled $1.3 billion in fiscal year 1998, or 4 percent more than the previous year. Over 1.2 billion breakfasts were served to children under the School Breakfast Program in fiscal year 1998, 2 percent more than in fiscal year 1997.

Although the eligibility guidelines are the same as those for the National School Lunch Program, the School Breakfast Program is much smaller, operating in fewer schools and residential institutions (about 71,100). In addition, only about 21 percent of the children in the schools and institutions offering school breakfasts participated in the program daily. The School Breakfast Program also serves a greater per-

centage of low income children—79 percent of all meals served in the program in fiscal year 1997 were free and another 7 percent were at reduced prices.

The Child and Adult Care Food Program

A total of 1.6 billion meals were served under the Child and Adult Care Food Program in fiscal year 1998. Of these meals served, 47 percent were in daycare homes, 51 percent in childcare centers, and 2 percent in adult daycare centers. Effective July 1997, provisions in the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 reduced the reimbursement rate for meals served in some daycare homes in middle- and upper-income neighborhoods. Total costs for meals served in daycare homes decreased by about 11 percent in fiscal year 1998, while the cost of meals served in childcare centers and adult daycare centers increased by 9 and 12 percent respectively. Total expenditures for the Child and Adult Care Food Program fell by 1 percent to almost $1.6 billion in fiscal year 1998.

Summer Food Service Program

Over 136 million meals and snacks were served to children during school vacations (mostly during summer) under the Summer Food Service Program in fiscal year 1998, about 6 percent more than the previous year. All meals under the program are served free. During the peak month of July, an average of 2.3 million children in almost 29,900 sites participated in the program daily. Costs of the program totaled $264 million in fiscal year 1998, or 8 percent more than in the previous fiscal year, reflecting the increase in the number of meals served.

Special Milk Program

USDA expenditures for the Special Milk Program totaled $16.7 million in fiscal year 1998, or 4 percent less than the previous fiscal year. This reduction in costs was due to a reduction in the quantity of milk served, from 141 million half pints in fiscal year 1997 to 131 million half pints of milk in fiscal year 1998. The decrease in program participation is due in large part to the continuing expansion of the National School Lunch and School Breakfast Programs, which include milk with their meals. Free milk accounted for almost 6 percent of all half pints served in the program in fiscal year 1998.

Costs of Supplemental Food Programs Held Steady

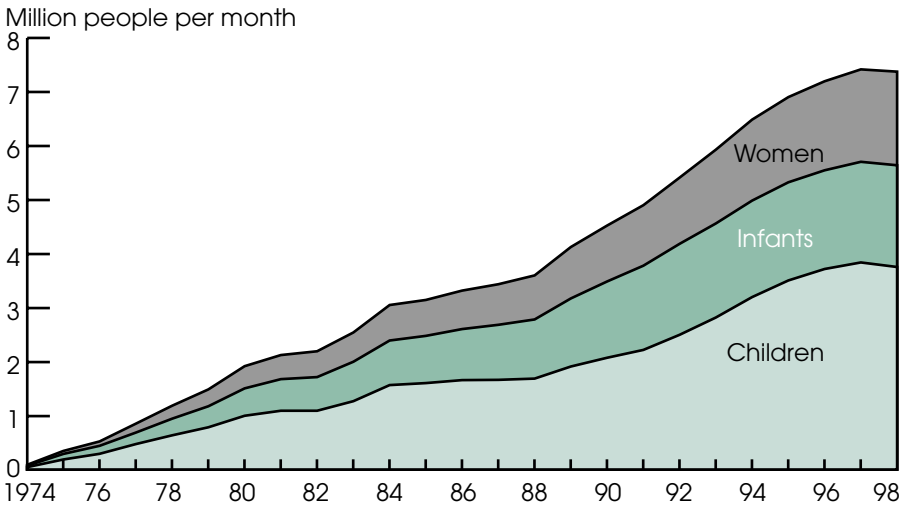
The top priority of both the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) and the much smaller Commodity Supplemental Food Program is to provide food packages for infants, children, and pregnant, breastfeeding, and postpartum women (although the Commodity Supplemental Food Program also serves elderly persons). Expenditures for these two programs totaled $3.9 billion in fiscal 1998, nearly the same as in the previous fiscal year. From fiscal year 1990 to fiscal year 1997, expenditures increased about 9 percent annually.

Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)

In terms of Federal expenditures, WIC is the third-largest food-assistance program, behind only the Food Stamp and National School Lunch Programs. Expenditures for WIC totaled $3.8 billion in fiscal year 1998, about the same as in the previous fiscal year.

WIC served an average of 7.4 million people per month in fiscal year 1998, a slight decrease (less than 1 percent) over fiscal year 1997, the first decrease in participation since the program's origin in 1974 (fig. 3). Twenty-four percent of WIC recipients in fiscal year 1998 were women, 26 percent were infants, and 51 percent were children. After rebates, the food benefits distributed to WIC recipients cost about $31.81 per person in fiscal year 1998.

Figure 3
Participation in WIC Dropped in Fiscal 1998



Domestic Food-Assistance Programs

About one in six Americans are estimated to have participated in at least one of USDA's food-assistance programs in a typical month in fiscal year 1998. The goals of these programs are to provide needy people with access to a more nutritious diet, to improve the eating habits of the Nation's children, and to help America's farmers by providing an outlet to distribute foods purchased under farmer assistance authorities.

- As the cornerstone of USDA's food-assistance programs, the ***Food Stamp Program*** enables participating households to improve their diets by increasing their food purchasing power. Unlike the other food-assistance programs that target specific groups, the Food Stamp Program is available to most households (subject to certain work and citizenship requirements) that meet income and asset criteria. Eligibility and benefits are based on household size, household assets, and gross and net income (gross monthly income cannot exceed 130 percent of the poverty guidelines). In the past, nearly all households received monthly allotments of coupons that were redeemable for food at authorized retail foodstores. However, about 58 percent of households now receive an Electronic Benefits Transfer (EBT) card, which operates like a bank card. The amount of a household's monthly food stamp allotment is based on USDA's Thrifty Food Plan, a market basket of suggested amounts of foods that make up a nutritious diet and can be purchased at a relatively low cost.
- The Food Stamp Program in Puerto Rico was replaced in 1982 by the ***Nutrition-Assistance Program***. In the same year, the Nutrition-Assistance Program for the Northern Marianas was started. The program for American Samoa started in 1994. These modified food stamp programs receive Federal funds through block grants, which allow these areas to operate programs designed specifically for their low-income residents.
- The ***National School Lunch Program*** provides lunch to children in public schools, nonprofit private schools, and residential childcare institutions. Schools receive cash and some commodities from USDA to offset the cost of food service. In return, the schools must serve lunches that meet Federal nutritional requirements and offer free or reduced-price lunches to needy children. Any child at a participating school may enroll in the program. Children from families with incomes at or below 130 percent of the poverty level are eligible for free meals, and those from families between 130 and 185 percent of the poverty level are eligible for reduced-price meals. Children from families with incomes over 185 percent of poverty pay a full price, though their meals are still subsidized to some extent. (Effective from July 1, 1998, through June 30, 1999, a family of four would have to have income at or below $21,385 to be eligible for free meals and at or below $30,433 to be eligible for reduced-price meals.)
- The ***School Breakfast Program*** provides breakfast to school children, with students from low-income families receiving free or reduced-price meals. USDA provides schools with cash assistance to offset the cost of food service. Eligibility is the same as that for the National School Lunch Program. As an incentive for schools in low-income areas to participate in the program, a school may qualify for higher "severe needs" reimbursement rates if a specified percentage of its meals are served free or at a reduced price and if preparation costs exceed the standard reimbursement rates.
- The ***Child and Adult Care Food Program*** provides healthy meals and snacks to children in nonprofit childcare centers and family and group daycare homes. In centers, children from low-income families are eligible for free or reduced-price meals based on the same eligibility guidelines used in the School Lunch and School Breakfast Programs. There are two sets of reimbursement rates for family daycare homes. Those located in low-income areas, or whose own households are low-income, are reimbursed at one rate (tier I), while other daycare home providers are reimbursed at a lower rate (tier II). In tier II homes, meals served to children who are identified as coming from households with income below 185 percent of poverty are reimbursed at the higher tier I rate.
- The ***Summer Food Service Program*** provides free meals to children (age 18 and under) and handicapped people over 18 years of age during school vacations in areas where at least half of the children are from households with incomes at or below 185 percent of the Federal poverty guidelines. There is no income test for eligibility in these low-income areas; any child in the program's operating area may participate. Sites not in low-income areas may participate if at least half of the children are from families with incomes at or below 185 percent of the Federal poverty guidelines (based on income applications collected from program participants). All children at these sites may receive free meals. The program is oper-

ated at the local level by sponsors who are reimbursed by USDA.

- The ***Special Milk Program*** provides funding for milk in public and nonprofit schools, childcare centers, summer camps, and similar institutions that have no other federally assisted food program. Milk is provided either free or at low cost to all children at participating sites. Sites may elect to serve free milk to children from families with incomes at or below 130 percent of the poverty level.
- The ***Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)*** provides nutritious supplemental foods, nutrition education, and healthcare referrals at no cost to low-income pregnant and postpartum women, as well as infants and children up to their fifth birthday who are determined by health professionals to be nutritionally at risk. To be eligible in most States, income must fall below 185 percent of the poverty guidelines. States can, however, set lower income limits. Food vouchers can be redeemed at retail foodstores for specific foods that are rich in the nutrients typically lacking in the target population.
- The ***Commodity Supplemental Food Program (CSFP)*** provides nutritious supplemental foods at no cost to infants and children up to their sixth birthday and pregnant and postpartum women, at or below 185 percent of poverty, who are not served by WIC. The program also serves persons 60 years of age or over with incomes not greater than 130 percent of the poverty guidelines. States have the option to require that participants be nutritionally at risk. The program provides food packages (instead of vouchers) tailored to the nutritional needs of the participants.
- The ***Food Distribution Program on Indian Reservations*** provides commodities to American Indians living on or near participating reservations who choose not to participate in the Food Stamp Program. It provides an alternative to the Food Stamp Program for many American Indians who live far from foodstores. Participants receive a monthly food package weighing about 50 to 75 pounds containing a variety of foods selected to meet their health needs and preferences. Eligibility is based on household income, resources, and proximity to a reservation.
- The ***Nutrition Program for the Elderly*** provides cash and commodities to States for meals for senior citizens. Administered by the U.S. Department of Health and Human Services, the program receives commodity foods and financial support from USDA. Food is served through meals-on-wheels programs or in senior citizen centers and similar settings. There is no income test for eligibility; all people age 60 or older and their spouses are eligible for the program.
- The ***Disaster Feeding Program*** is administered by the Federal Emergency Management Agency (FEMA), which is responsible for coordinating disaster relief. Under this program, USDA provides food commodities for assistance in major disasters or emergencies when other food supplies are not readily available.
- ***The Emergency Food Assistance Program (TEFAP)***, which began as a cheese-giveaway program in 1982, was implemented as a way to reduce inventories and storage costs of surplus commodities through distribution to needy households. In 1989, Congress appropriated funds to purchase additional commodities specifically for this program. USDA buys the food, processes and packages it, and ships it to the States. States are allocated commodities and administrative funds based on a formula that considers the number of people below the poverty level in each State (60 percent) and the number unemployed (40 percent). Within broad guidelines, each State sets its own eligibility criteria and selects local emergency feeding organizations (including soup kitchens, food recovery organizations, and food banks) to distribute the food.
- Under the ***Food Distribution Programs for Charitable Institutions and Summer Camps***, USDA donates food to nonprofit charitable institutions serving meals on a regular basis for needy persons and to summer camps for children. These institutions include orphanages, soup kitchens, temporary shelters, homes for the elderly, and church-operated community kitchens for the homeless. (Summer camps participating in the Summer Food Service Program are not eligible to receive commodities through this program.) The amount of food donated each year depends on the amount of surplus and price support commodities available.
- Under the ***Food Donation Programs to Soup Kitchens and Food Banks***, USDA purchased food specifically to distribute to soup kitchens and food banks. Effective in fiscal 1997, this program was absorbed into the TEFAP program.

Commodity Supplemental Food Program

Expenditures for the Commodity Supplemental Food Program (CSFP) totaled $93.3 million in fiscal year 1998, about 6 percent less than the previous fiscal year. Like the WIC program, the CSFP provides supplemental foods to low-income women, infants, and children (the program's original target group). However, unlike the WIC Program, this program expanded to include the elderly (60 years of age and older), who now comprise two-thirds of the program's participants. In fiscal year 1998, an average of almost 376,900 people participated in the program each month, up 2 percent over the previous fiscal year.

Outlays for Food Donation Programs Increase

Food donation programs, the smallest of the four major food-assistance groups, consist of the Food Distribution Program on Indian Reservations, the Disaster Feeding Program, the Nutrition Program for the Elderly, The Emergency Food Assistance Program, and the Food Distribution Programs for Charitable Institutions and Summer Camps. These programs provide food assistance to needy persons and stabilize commodity prices by providing outlets for surplus foods. Although expenditures for these programs increased in recent years (including a 9-percent increase in fiscal year 1998), they remain far below the levels of the mid-1980's. At that time, USDA acquired larger stocks of surplus foods through its commodity price-stabilization and surplus-removal activities in support of farmers. USDA distributes this food to a variety of institutions serving the needy. Modifications in the price-stabilization and surplus-removal programs and changing market conditions have resulted in less surplus food being available for distribution through these programs.

Food Distribution Program on Indian Reservations

An average of almost 124,700 American Indians per month participated in the Food Distribution Program on Indian Reservations in fiscal year 1998, a little more than during fiscal year 1997 (124,000). Costs of the program totaled $70.5 million in fiscal year 1998, slightly less than the previous fiscal year.

Nutrition Program for the Elderly

The Nutrition Program for the Elderly is administered by the U.S. Department of Health and Human Services but receives both commodity foods and financial support from USDA. Almost 250 million meals were served under this program in fiscal year 1998, about the same as in the previous year. USDA costs for this program in fiscal year 1998 totaled $140.7 million, 3 percent less than in the previous year.

Disaster Feeding Program

The Federal Emergency Management Agency (FEMA) administers the Disaster Feeding Program, which receives food commodities from USDA and distributes them to victims of major disasters and emergencies, such as floods, tornados, blizzards, earthquakes, and severe winter weather. USDA expenditures for this program totaled only $266,400 in fiscal year 1998, down from $1.1 million in fiscal year 1997.

The Emergency Food Assistance Program (TEFAP)

Expenditures for TEFAP (which includes the Food Donation Program to Soup Kitchens and Food Banks) totaled $232.2 million in fiscal year 1998, or 21 percent more than the previous fiscal year, due to increased Congressional appropriations for the program in fiscal year 1998.

Food Distribution Programs for Charitable Institutions and Summer Camps

Expenditures for the Food Distribution Programs for Charitable Institutions and Summer Camps, among the smallest of USDA's food-assistance programs, totaled $9.2 million in fiscal year 1998. This spending was a 46-percent increase from the previous fiscal year.

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Characteristics of Mid-Atlantic Food Banks and Food Rescue Organizations

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One in 10 American households in 1995 was uncertain about the availability of regular meals sometime during the year, and in 4 percent of households, individuals experienced some degree of hunger—the painful or uneasy sensation caused by a lack of food—because of inadequate resources to obtain food, according to the U.S. Department of Agriculture's Food Security study. The measure of hunger in this study includes indicators ranging from a repeated pattern of cutting or skipping meals (less severe hunger) to going whole days with no food (more severe). In fiscal year 1997, USDA's nutrition-assistance programs, designed to reduce the severity and extent of food insecurity and hunger, served an estimated one in six Americans at a cost of $35.8 billion.

The Food Stamp Program, the Nation's principal nutrition-assistance program, accounts for 60 percent of all USDA nutrition-assistance expenditures. Charitable food providers, such as food pantries, emergency kitchens, and emergency shelters, help low-income households augment food supplies obtained through Federal nutrition-assistance programs and provide food to needy individuals who are either ineligible or otherwise do not participate in these programs.

Charitable food providers receive commodity and administrative support from USDA through The Emergency Food Assistance Program (TEFAP) (see box, "USDA Emergency Food Assistance Program"). They also receive a high proportion of their food supplies from food banks and food rescue organizations, collectively called food recovery organizations. Food banks are nonprofit organizations that solicit nonperishable items, such as dry cereal, from grocery stores, wholesalers, and food manufacturers. Food rescue organizations are nonprofit organizations that obtain mainly prepared and perishable food products from food service organizations, such as restaurants, hospitals, caterers, and cafeterias, and from distributors of fresh fruits and vegetables.

The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA) fundamentally changed how the Nation's wel-

USDA Emergency Food Assistance Program

Through the Emergency Food Assistance Program (TEFAP), the U.S. Department of Agriculture (USDA) provides commodities to State agencies for distribution to needy households, or for provision of meals to the needy, and provides funds for administrative support. State agencies then provide the commodities to local food recovery organizations, food pantries, and emergency kitchens, which often receive foods from private donations. Recipients of food for home use must meet income and other eligibility criteria established by the State. The types of foods that USDA purchases for distribution in TEFAP vary, depending on the agricultural market and State preferences, but include canned fruit and vegetables, meat, poultry, and fish, rice, cereal, pasta, peanut butter, nonfat dry milk, and other products. In fiscal year (FY) 1999, $90 million is available in program appropriations for the purchase of TEFAP commodities, in addition to the distribution of surplus foods in this program. An additional $45 million is available in FY 1999 for the administrative support of State and local agencies.

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fare and nutrition-assistance programs operate by reducing benefits, tightening eligibility requirements, and giving States more direct control over various programs. Some charitable food providers attribute recent increases in requests for food assistance to the enactment of the PRWORA. Moreover, they report that, as the demand for charitable food assistance has risen, the availability of some food products has declined because food manufacturers and retailers have become more efficient in managing and disposing of food inventories.

One of the goals of USDA's recent Community Food Security Initiative is to increase by 33 percent by the year 2000 the quantity of surplus food recovered from the food marketing system and distributed to needy households through charitable food providers. More information is needed on how such providers respond to changing policy environments and economic conditions and how these providers interact with the commercial food marketing system. This article examines the operating characteristics and service areas of 42 food recovery organizations and their subsidiary distributing organizations in the Mid-Atlantic region (Delaware, Maryland, Pennsylvania, Virginia, West Virginia, and the District of Columbia). Data were collected from food recovery organizations on their geographic service areas; quantity and type of commodity supplies and distributions over the 1994-97 period; sources and recipients of food donations; and nonfood resources.

The results presented here are by no means complete. While we attempted to identify and collect data from all food recovery organizations in the region, we may have excluded some providers. Additionally, we did not determine the degree to which the study providers were representative of food recovery organizations in other regions of the country. Instead, this article serves as a useful starting point for additional research. ERS is currently sponsoring a nationally representative study of food recovery organizations, food pantries, and emergency kitchens. The study is intended to help USDA understand the ability of emergency food-assistance providers to meet current demand, use available sources of surplus food, and provide services to those most in need.

Food recovery organizations included in this study came from membership affiliations provided by nationally-based charitable food organizations like Second Harvest and Foodchain and referrals from State agencies. Data were collected from published and unpublished information provided by the food recovery organizations.

Food Recovery Organizations: Charitable Food Wholesalers for the Needy

Food recovery organizations are nonprofit organizations that solicit, receive, and store donated food and grocery products and redistribute these foods to their client agencies. These client agencies provide food directly to needy people, and include both emergency food providers—food pantries, emergency kitchens, and emergency shelters—and nonemergency providers such as day care and senior centers, and drug and alcohol rehabilitation centers. Food pantries, usually run out of churches or small nonprofit agencies, distribute food and other grocery items for preparation and use in private homes. Emergency kitchens provide meals to people who do not live onsite and to residents of shelters.

Food recovery organizations, like for-profit wholesalers, lower administrative costs by enabling clients (customers) to make one, instead of numerous, transactions. Both also lower the administrative costs of food donors (vendors), such as manufacturers, by providing one regional destination instead of hundreds of local destinations for surplus food products. The key difference between food recovery organizations and for-profit wholesalers is that for-profit wholesalers sell products at some premium to its wholesale cost, while the $0.14 per pound charged to client agencies by many food recovery organizations to offset their handling costs is only a fraction of the food's average wholesale cost, estimated by Second Harvest at about $1.50 per pound.

Food recovery organizations and for-profit wholesalers also differ in how they serve their clients, acquire inventory, and finance their operations. Food recovery organizations acquire most of their food supplies through donations of surplus food products from farmers, manufacturers, wholesalers, supermarkets and other retailers, and restaurants and other eating places, and have little direct control over the types of products they receive. To help balance their product offerings, many food recovery organizations supplement donations with food purchases, usually at the wholesale level. For-profit wholesalers, on the other hand, purchase goods from food vendors and then resell them to restaurants, grocery stores, and other organizations. The for-profit wholesalers store products until customers need them, and purchase only what their customers demand.

Food recovery organizations in the Mid-Atlantic region received most of their funding from sources other than handling fees. In 1997, they received about 21 percent of their financial support from State, local, and Federal grants and most of the remainder from philanthropic organizations, private individuals, and corporations. To reduce costs, food recovery organizations in the

Mid-Atlantic region relied on volunteers for about one-third of their 1997 total staffing needs and received donated transportation services that provided about 37 percent of their transportation requirements.

Total food distributions by Mid-Atlantic food recovery organizations in 1997 amounted to 142 million pounds of food, and the average food recovery organization distributed about 3.4 million pounds in 1997—about as much as a medium-size supermarket. In terms of their target population, Mid-Atlantic food recovery organizations provided about 46 pounds of food for every person whose household income fell below the poverty level in 1997. By contrast, USDA data show that the U.S. food supply provided about 1,944 pounds per capita in 1997 and industry data suggest that the 3,111 Mid-Atlantic supermarkets sold an average of $10.8 million worth of products each in 1997, or about 8.9 million pounds of product. Pounds of product sold was computed from per capita food consumption and the average number of people served by an average supermarket. We estimated the average number of people served by a supermarket by dividing average supermarket sales by average food expenditures for a family of four under USDA's highest estimate of food expenditures by an average family of four of $181.70 per week in June of 1998.

Food Recovery Organizations Organize To Lower Costs

The types of food products they handle and the customers they serve shape the organization of both food recovery organizations and for-profit commercial wholesalers. Since storage and handling requirements and marketing methods often vary by commodity type, for-profit commercial wholesalers reduce their costs by specializing in the distribution of types of commodities, such as fruits and vegetables.

Food recovery organizations specialize in either nonperishable or perishable food products for the similar reasons that motivate specialization by private wholesalers. Most food banks in the Mid-Atlantic region deal primarily in nonperishable products, such as canned goods and cereals, but they also increasingly handle some fresh and frozen foods. By focusing on nonperishable goods, they can concentrate on collecting and storing goods and reduce their own distribution costs by asking client agencies to come to the food bank, choose the food items that match their needs, and transport the food to their agencies. Food rescue organizations collect and distribute prepared and perishable food products (protein-rich entrees and fresh fruits and vegetables). Since food received from food rescue operations has a very short shelf life, these organizations serve mostly food kitchens and other prepared food organizations; coordinate their distribution schedules closely with the needs of their client agencies; and often provide transportation for the donated food.

Many food recovery organizations lower their costs through membership in nationally based parent organizations. These parent organizations lower costs by soliciting donations from national manufacturers and providing centralized distribution and record keeping, offering technical and marketing support, and assuring compliance with acceptable food handling practices for their members. Member food recovery organizations pay an annual membership fee and transportation costs for foods solicited for them by the parent organization.

Second Harvest, the largest charitable food organization in the United States (with 188 member food banks), solicits grocery products from national food companies and channels them to affiliated food banks. It distributes mostly nonperishable products, but also fresh fruits and vegetables and some prepared foods. Foodchain, a national food rescue network, has about 130 members in the United States and Canada. Its affiliates distribute prepared and perishable food surpluses after recovering them from foodservice companies and restaurants and other eating places.

Second Harvest-affiliated food banks have contractually defined, exclusive service areas and, with their subsidiary distributing organizations, dominate the Mid-Atlantic Region, accounting for 31 of the 42 food recovery organizations and for 88 percent of these organizations' total food distributions. The region's 5 Foodchain food rescue organizations and 6 independent, unaffiliated providers accounted for the 11 remaining food recovery organizations. Some food banks hold memberships in both Second Harvest and Foodchain.

Food Recovery Organizations, Client Agencies, and the Linkage to the Needy

Client agencies rely on food recovery organizations for much of their total food supplies, but to what extent depends on their food distribution method. Pantries are usually open only periodically and primarily distribute nonperishable products that have long-term storage potential. Food banks focus on collecting nonperishable goods. According to a 1997 Second Harvest survey, affiliated Second Harvest food banks provided pantries with about 61 percent of their food supplies.

Emergency kitchens and shelters have a high demand for meat, dairy products, fresh fruits and vegetables, and prepared foods, such as

baked goods and meal components, because they prepare meals and snacks directly for needy clients. This need for perishable items and the food bank focus on the collection of nonperishable food products may explain why, according to the Second Harvest survey, emergency shelters and kitchens received only 45 percent and 38 percent of their food supplies, respectively, from food banks.

A typical Mid-Atlantic food recovery organization distributed about 14,000 pounds of food to each of its 180 client agencies in 1997. Emergency providers received most of the distributions—64 percent for food pantries and 10 percent each for emergency kitchens and shelters.

Food Recovery Organization Distributions Are Growing

Like their counterparts in the private sector, food recovery organizations must continually adapt to changing market and policy environments. Legislative changes under PRWORA, for example, suggest that charitable food providers may need to respond to greater client demand for food since food stamp benefits are being reduced. Preliminary research by USDA's Food and Nutrition Service suggests that under PRWORA, families with children will lose an average of 13 percent of their food stamp benefits by 2002, or about $45 each month, and over 1 million people—largely legal immigrants and unemployed adults—will lose their eligibility for food stamps.

Although not nationally representative, the 1997 Second Harvest study, which was conducted just before the enactment of the PRWORA, reported that 10.6 percent of clients sought emergency food assistance because they ran out of food stamps and 2.5 percent sought assistance because their food stamps were discontinued. Thus, we examine the role of emergency food assistance in the context of Federal nutrition-assistance programs.

Data for the Mid-Atlantic region suggest that emergency food providers account for a small share of total nutrition assistance received by needy households. For example, an average of about 1 million households per month in the Mid-Atlantic region received a total of $1.9 billion worth of food stamp benefits during 1997. Valuing these benefits at the average retail price of $0.98 per pound used to calculate food stamp allotments under USDA's Thrifty Food Plan, we estimate that the region's total distribution of food stamps provided about 1.9 billion pounds of food to needy people (the retail price of $0.98 per pound was calculated by dividing the weekly cost of the USDA Thrifty Food Plan in June 1998 for a family of four by the number of pounds of food per week in the Thrifty Food Plan for this family). Distributions by food recovery organizations, on the other hand, totaled about 142 million pounds or 7.5 percent of total food stamp poundage and, unlike food purchased under the Thrifty Food Plan, are not representative of a complete diet. Of course, total charitable food assistance exceeds food recovery organization distributions because client agencies also obtain food supplies from sources other than food recovery organizations.

We do not have data on total distributions by client agencies in the Mid-Atlantic region, but the 1997 Second Harvest survey indicated that all client agencies on average received 53 percent of their food supplies from food recovery organizations. Assuming that client agencies in the Mid-Atlantic region were similar to the Second Harvest average, we estimate that the region's client agencies distributed about 267 million pounds of food—14 percent of total food stamp poundage. Note, this proportion overstates the importance of charitable food provision because Federal nutrition-assistance programs like the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) have not been counted in the Federal nutrition-assistance estimate.

Total food distributions by Mid-Atlantic region food recovery organizations grew 7.5 percent per year between 1994 and 1997. Growth varied widely by size of the food recovery organizations. Distributions from the six largest food recovery organizations (total distributions of 8-16 million pounds annually) grew the most slowly at 5.5 percent annually. Medium-sized food recovery organizations (distributions of 2-8 million pounds) grew 6.5 percent annually during the 4-year period, while the smallest food recovery organizations (distributions less than 2 million pounds) grew at 15 percent annually.

These numbers are impressive compared with the growth in U.S. food supplies over a similar period and may suggest that food recovery organizations are capturing a larger share of available food supplies. For example, between 1992 and 1995, U.S. annual growth in supplies of red meat, poultry, dairy products, flour and cereal products, and fresh fruits ranged from 3-6.5 percent.

The Food Industry Is the Major Source of Food Donations, but More Is Available

The relationship between food recovery organizations and industry donors is mutually beneficial. Producers and retailers throughout the marketing system can donate unmarketable food products, such as those with damaged or promotional packaging, to food recovery organizations instead of discarding

them or reclaiming them through labor-intensive operations. Food recovery organizations benefit by receiving surplus foods, while the donors help the community, often receive a tax benefit, reduce waste disposal costs, and reduce pressure on local solid waste systems.

Private sources accounted for more than three-fourths of food recovery organizations' supplies in the Mid-Atlantic region in 1997 (fig. 1). Retailers, wholesalers, other food industry companies, and the Second Harvest parent organization accounted for 69 percent of the private donation total. Evidence suggests that donations from wholesalers, mainly of fresh produce, grew the fastest, while local retail and manufacturing donations grew only slightly and national donations through the Second Harvest network declined modestly.

Additional surplus food may be available from the private sector. Using Census of Manufacturer's data, we estimate that Mid-Atlantic region food recovery organizations recover less than ½ of 1 percent of the total food manufactured in the region while the amount of surplus food at the retail level has been estimated at about 2 percent. Manufactured food does not precisely match retail sales in the Mid-Atlantic region; thus, any comparison should be used only to illustrate that recoverable food is available and not a precise estimate of the quantity available.

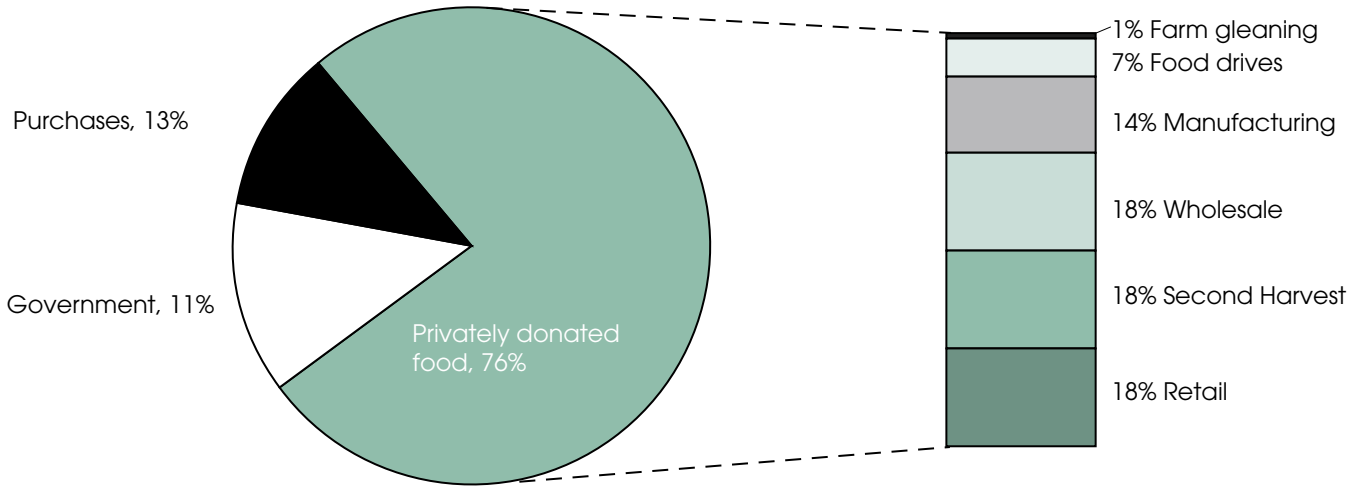
There are ways to bridge the gap between donations and salvageable food. These include increasing the industry's awareness of the foods needed by food recovery organizations, reducing transportation costs to food recovery organization warehouses, and increasing refrigerated transportation and cold storage space. However, with only 11 paid workers per food recovery organization who primarily focus on salvage, distribution, and solicitation of private financial resources, some food recovery organizations in the Mid-Atlantic region may lack both the staff and financial resources needed to encourage and collect more private donations.

Donations From Fresh Produce Wholesalers Have Risen Dramatically

More than two-thirds of distributions in the Mid-Atlantic region were nonperishable (shelf-stable) food products, such as canned goods and cereals (fig. 2). Perishable foods—fresh and frozen meat, dairy products, fresh produce, and other products, such as bread—accounted for 27 percent of total distributions. By contrast, USDA (1998) data indicate that, on a poundage basis, American diets consist of about 12.9 percent of meat, fish, chicken, and eggs, 29.6 percent dairy products, 15.8 percent fresh fruit and vegetables, 10.2 percent flour (mostly used for bread and other baked goods) and cereals, and 31.5 percent shelf-stable products.

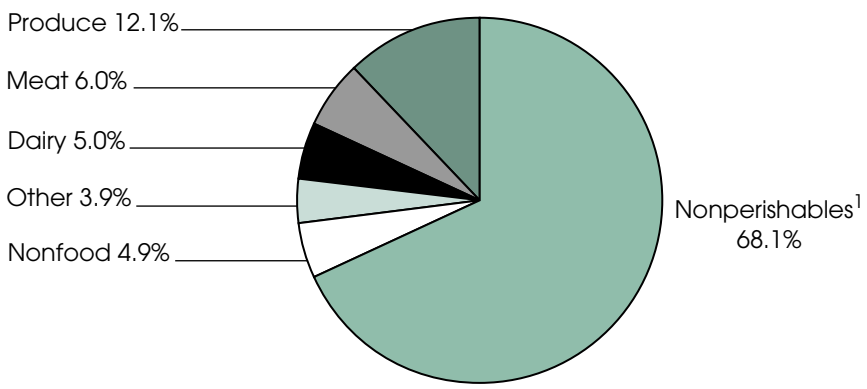
Perishable food resources are increasingly available to food recovery organizations and are thus supplementing traditional donations of canned goods and other nonperishable foods. USDA's food recovery and gleaning activities and other

Figure 1
Most Food Donated to Mid-Atlantic Food Recovery Organizations Came From the Food Industry[1]



Notes: [1]Supplies do not include food that is transferred among food banks. On average, this supply source amounted to 12 percent of supplies. Source: ERS estimates based on food recovery organization data.

Figure 2
Nonperishable Food Led Donations to Food Recovery Organizations, but Recovery of Perishable Food Is Increasing, Especially Produce



Notes: [1]Nonperishables include canned goods, cereals, soups, etc. Source: ERS estimates based on food recovery organization data.

efforts have promoted the recovery of perishable food products, especially fresh produce. Data from Mid-Atlantic food recovery organizations suggest that these efforts have been successful. Fresh produce was the fastest growing food type distributed by the region's food recovery organizations, accounting for 13 percent of total food distribution in 1997. By contrast, distributions of other food types changed little during the same period.

Much of the produce received by food recovery organizations is expected to spoil in less than five days because it is obtained from wholesale markets at the end of its shelf life. As a result, Mid-Atlantic food recovery organizations reported throwing away about 20 percent of the produce after labor-intensive sorting. Moreover, even though food recovery organizations do not normally assess client agencies a shared maintenance fee for fresh produce, as is the case for most other foodstuffs, some food recovery organizations in the region indicate low acceptance by client agencies.

The limited shelf life for most produce may explain client agencies' tepid response to the availability of fresh produce. Pantries and similar agencies account for a majority of food recovery organizations' distributions yet many in the region are open irregularly; thus, these agencies cannot readily accept most produce. At emergency kitchens and shelters, on the other hand, food-preparation schedules must be compatible with the type of food received. If not, fresh produce will go to waste. Fresh produce can also increase the labor required to prepare meals. For example, it is easier to open a can of corn than cut corn off the cob and cook it.

A few Mid-Atlantic food recovery organizations receive outside support that allows them to overcome such infrastructure constraints. For example, with the help of start-up grants, one food recovery organization in the region bought and distributed 28 small freezers and coolers to its agencies to permit better perishable food storage. Another developed a way to more effectively market fresh produce to agencies, allowing it to charge a small handling fee for such foods.

Perishable and prepared food rescue operations seem particularly well suited for the recovery and distribution of perishable foods. These providers can establish a regular delivery schedule because they serve mainly kitchens and other agencies that use produce on a daily basis.

The foregoing suggests that produce is available and has the potential to increase the amount and variety of charitable food assistance. However, its recovery carries relatively high resource costs, such as greater storage capacity at both food recovery organizations and their client agencies, and requires food recovery organizations to establish an improved method of providing produce to agencies when needed.

Urban Food Donations per Poor Person Exceed Rural Donations

Market characteristics, such as locally available food supplies, operating funds, and the size of the needy population, determine food recovery organizations' locations in much the same way that consumer demand and consumer discretionary spending affect the locations of restaurants and other for-profit businesses. In the Mid-Atlantic region, there were 16 urban, 11 semi-urban, and 15 rural food recovery organizations. Urban food recovery organizations estimated that they distributed 70-100 percent of their food products in cities defined as 100,000 or more people. Semi-urban food recovery organizations distributed 35 to 69 percent of their food products in cities, and rural food recovery organizations distributed less than 35 percent of their food products in cities.

It costs more for rural food recovery organizations to collect and dis-

tribute food because of longer distances between food recovery organizations and their food donors and the client agencies. Rural food recovery organizations in lower-income areas may also face greater impediments in serving the poor because there are fewer financial and other resources in the community from which to draw.

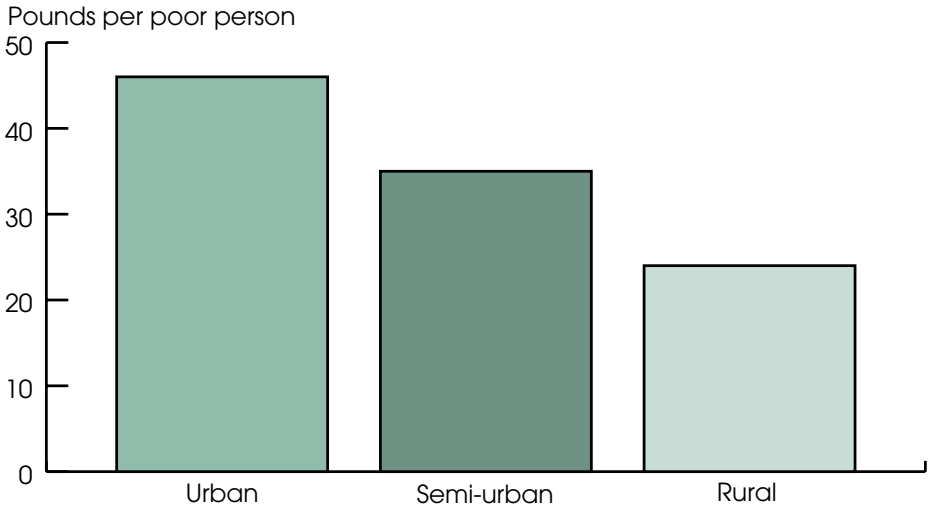
Private donations make up a smaller share of total food resources (table 1) while Federal commodities, State and local government programs, and food from other food recovery organizations comprise a greater share of rural Mid-Atlantic food recovery organization resources. Although there is insufficient data to draw substantive results, a lower level of private donations seems to have also resulted in lower charitable food distributions per poor person in rural places than in urban ones (fig. 3).

Rural food recovery organizations face other issues that may impede future growth. Rural food recovery organizations provide proportionately more food to food pantries than do their urban counterparts. Since food pantries mainly distribute dry groceries on inconsistent schedules, rural food recovery organizations have fewer outlets for fresh produce and other perishable products, thereby limiting food recovery organization capacity to supply a variety of foods to the needy.

Table 1
Urban and Rural Differences

Item	Urban	Rural
Average size (million pounds)	4.9	1.2
Volunteer labor (percent)	32.5	41.8
Food distributed per dollar (pounds/$)	4.5	3.6
Privately donated food (percent)	69.0	35.7
Distribution to pantries (percent)	60.0	82.6
Annual growth in distributions (percent)	8.1	4.5

Figure 3
Fewer Private Donations in Rural Areas Means Less Food Per Poor Person



Notes: Urban food recovery organizations are defined as those distributing 70-100 percent in cities; semi-urban distributed 35-69 percent in cities; rural distributed 34 percent percent or less in cities. Data on pounds per poor person distributed came from a partial sample of food recovery organizations and should be considered only as suggestive. Source: ERS estimates based on food recovery organization data. Types determined by percent of distributions to cities of 100,000 or more. A poor person is defined as living in a household with income below the poverty line.

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